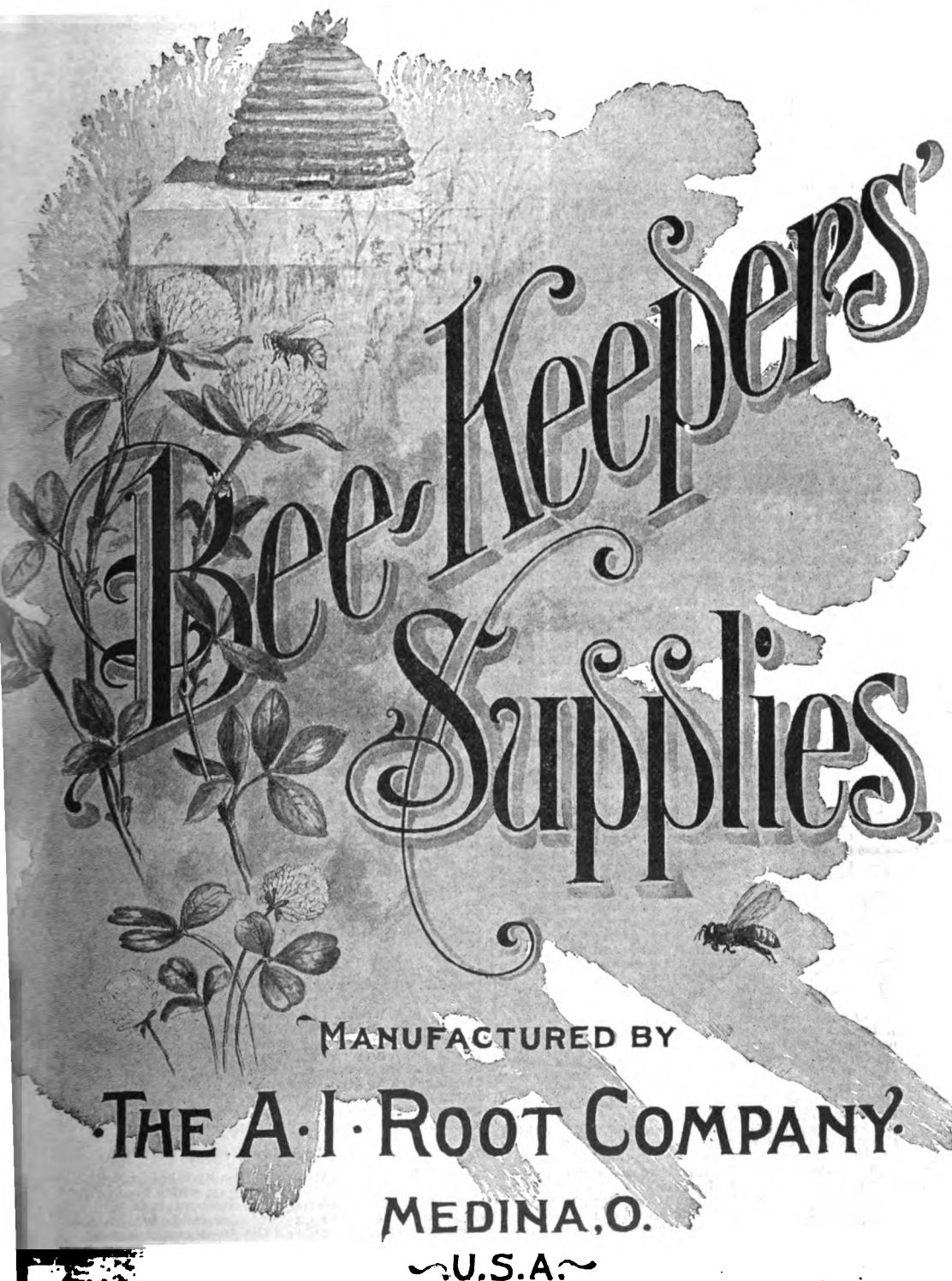


26th Year.

MAY, 1896.

82d Edition.



Beekeepers' Supplies

MANUFACTURED BY

THE A. I. ROOT COMPANY.

MEDINA, O.

U.S.A.

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Our 26 Years' Growth in Business.

In 1865 a swarm of bees chanced to pass overhead where A. I. Root, the president and founder of our business, was working. A fellow-workman asked what he would give for them. He answered, "A dollar," little dreaming that the man would succeed in getting them. To his astonishment, he returned with the swarm. With this as a nucleus of what is now a large business, he began the study of bees in earnest. In spite of the fact that some of his friends assured him that "bees didn't pay any more," and in spite of the usual blunders of a beginner, his apiary began to increase, and his enthusiasm developed into the unmistakable "bee-fever." In 1867, from 20 stocks he took the first thousand pounds of honey ever taken with an extractor, using a machine of his own devising, and increased to 85. In 1868 he extracted 6162 lbs. of honey from 48 colonies, and sold the product at 25 cents per pound. This capped the climax; and instead of being confronted with the old assertion that "bees didn't pay any more," inquiries came in thick and fast about the new industry—what kind of bees, hives, extractors, etc., to adopt, and where to get them. As the hives and other appurtenances were rude he saw no other way than to manufacture the implements he recommended. Correspondence and trade increased until it became necessary to issue a circular, not only to answer questions, but to tell the people what and where to get their supplies. A windmill, assisted by foot power, furnished the motive force for the buzz-saws for hive-making. Soon these became inadequate, and a four-horse steam-engine was called into requisition. The business began to grow at such a rapid rate, that in 1876 we were obliged to double our working force, and run night and day during the busy season. This we did for a couple of seasons, when, in 1878, we sold our 20x40 building "up town," and purchased a lot near the depot. Here we erected a brick structure 40x100, two story and a basement, fully equal, as we thought, to the demands of our rapidly growing business. In this we put a 40-horse engine, with all the latest improved machinery. Our trade, as usual, continued to increase at such a rapid rate that we found it necessary to double our capacity by adding another wing to our factory, in 1883, of the size of the original structure. Still the little bee seemed to be able to make a bigger stir than ever throughout the world, and the consequence was that another building, 44x96, was added in 1886 to the works. A 90-horse-power automatic engine, and 250 feet of line shafting, with all the attendant machinery, was likewise added to the plant during the same year. Again, in 1888 more storage room was required, and another smaller structure was put up. In 1889 another 60-horse steam-boiler was added, as well as a large new brick chimney, 90 ft. high, and a good deal of additional machinery for turning out more work.

Still again, in 1890, trade nearly doubled over former years, and we were compelled to extend our works by the addition of another brick building, 37x98 ft., two stories and a basement. Other improvements were also introduced the same year, such as electric lights, automatic sprinklers, and increased safeguards against fire. A new east-and-west railroad was built, bringing more and better shipping facilities. Our engine capacity was increased to 150 horse-power, and our line shafting to over 500 ft. In 1891 a three-story warehouse 48x96 was built, in which to store goods during the dull season, ready to ship promptly when called for in the spring.

In 1894 we were incorporated, with a capital stock of \$100,000, all paid in. As the stockholders are the immediate members of A. I. Root's family, with A. I. Root owning the largest number of shares, no new policy will be put forth, and the business will continue to grow on the lines already laid down. During this same year (1894) the boiler capacity was increased to 180 horse-power, and expensive section-making machinery was put in. New machinery was also added to other departments.

A healthy growth continues during 1895. A third story was added to the woodworking building, to provide needed room for growth in that department. The entire system of taking sawdust and shavings from the machines, and depositing it in the furnaces, was enlarged and made over new, and more improved machinery added. A big advance was made in the manufacture of comb foundation by the introduction of a new process, for which letters patent are being secured. The supply business of Thos. G. Newman, Chicago, was purchased, and a branch office established in that city, as well as in various other places, for the sale of our line of goods.

Our Goods Near Your Home.

It is often quite expensive, in high freight charges, to send long distances for small lots of goods; and quite often, when they have to make a number of transfers from one railroad to another, from one to three weeks' time is required, depending on the distance, for shipment to reach destination after being started. When goods are shipped in carload lots, much lower rates are secured, and quicker time made in transit. In view of these facts we have found it advisable, and a great convenience to our distant customers to have our goods in stock at many large business centers throughout the country. In a number of cases we have found it best to establish branch offices conducted in the name of our company and in charge of a competent manager thoroughly conversant with the needs of his section of country. In other cases large business houses have made bee-keepers' supplies a branch of their business. As the needs of different localities vary somewhat, a full assortment of every thing listed in this catalog is not kept in stock, but only such as are in most demand in each locality. It would many times be quite a help to these dealers, and a source of profit and convenience to you, if you would communicate early with the dealer or branch named below who is nearest you, or on most direct route, giving a list of your probable requirements, and asking for price on same. Except at far distant points in the West, our goods may be had at these branches at catalog prices. The branches and dealers supplied by car lots are:

The A. I. Root Co., Chicago, Ill., G. W. York, M'gr.
 " St. Paul, Minn., H. G. Acklin,
 " Syracuse, N. Y., F. A. Salsbury,
 " Mechanics Falls, Me., J. B. Mason,
 Wm. A. Selser, 10 Vine St., Philadelphia, Pa.
 A. F. Brown, San Mateo, Fla. Near Palatka.
 Rawlins Implement Co., Baltimore, Md.
 M. H. Hunt, Belle Branch, Wayne Co., Mich.
 Geo. E. Hilton, Fremont, Newaygo Co., Mich.
 Chas. F. Muth & Son, Cincinnati, Ohio.
 Walter S. Pouder, Indianapolis, Ind.
 Jos. Nysewander, Des Moines, Iowa.
 John Nebel & Son, High Hill, Montgomery Co., Mo.
 A. L. Baker, White Rock, Ark. Ozark, fgt. office.
 W. O. Victor, Wharton, Wharton Co., Texas.
 O. P. Hyde, Lampasas, Lampasas Co., Texas.
 McClure Bros., Las Cruces, N. M.
 Barteldes & Co., Denver, Colo.
 Henry F. Hagen, Rocky Ford, Colo.
 Buell Lamberson, Portland, Oregon.
 W. K. Ball, Reno, Nev. F. K. Andrews, Bishop, Cal.
 G. G. Wickson & Co., San Francisco and Los Angeles, Cal.

Local Dealers.

Besides these dealers who get carload lots we have a good many local dealers, mostly in this and near-by States. These are dealers in general merchandise, or progressive bee-keepers, or others interested in improved methods of bee-keeping, who undertake to supply the needs of bee-keepers in their locality. If there is such a dealer in your vicinity it will be to your best interests to place your order with him; but be sure to insist on having Root's goods, and do not accept inferior substitutes. Bee-keepers as a rule are not numerous enough to have a dealer or agent at every cross-roads, as is possible with some things, nor do we intend to have more than one dealer in a place. Should it not be possible to obtain our goods from a dealer, or for any other reason you prefer to send your order direct to us, we shall be pleased to serve you.

Remember that we guarantee to furnish you bee-supplies as cheap as you can obtain equally good goods from any responsible firm, even taking the cost of transportation into the account. If our catalog prices do not compare with those you may have, give us an opportunity to figure with you before placing your order, being careful to send us a list of goods on which you desire figures.

Shipping Facilities.

Our shipping facilities are of the best, being located on the Northern Ohio Railway, which is one of the Brice system, which aggregates several thousand miles of road; also on the Cleveland, Lorain & Wheeling, which crosses all the great east-and-west lines through Ohio. We have only the U. S. Express Co. here, but have an arrangement with them securing quite a reduction from their regular tariff rates. Information in regard to the cost of transportation to any point furnished on application.

1896.—Greeting.

In presenting to you our Annual Catalog there are a few things to which we invite your especial attention and careful consideration.

Our Line. In the first place, we have tried not to confuse you with a great variety of hives and implements, leaving you to choose as best you may from among them. We have, rather, confined our attention to presenting a full line of the different implements required by a bee-keeper, and offer what we consider the best in each case, occasionally giving you a choice of various good implements for the same purpose, but usually in these cases indicating our preference.

Experience. Having been actively engaged in caring for bees for thirty years, all the time considering suggested improvements, and having access to the opinions and experience of the best-informed bee-keepers throughout the country, we are in position to know what is best for the bee-keeper to use. Having also the experience of twenty-five years in the manufacture of bee-keepers' supplies, we have come to appreciate the necessity of close measurements and accurate workmanship in bee-hives and supplies, and have learned how to avoid many of the mistakes and miscalculations almost inevitable with amateurs and ordinary planing-mills. In regard to this, let us say right here that you can not, as a rule, afford to have your local planing-mills do your work under the impression that you will thereby save freight. They will charge you a big price, because they buy in a small way and give you poor work in the bargain. In very many instances we can furnish you the hive-boards and frame stuff, all ready to put together, for less than you can buy the raw lumber at the mill.

Equipment. We have many quite costly special machines, made for doing special lines of work most economically and accurately; and the use of these is made possible only by a large output of such goods, and you will readily see that we are in position to furnish superior goods at more reasonable prices than you can have them made for, and with the assurance that you are getting something that is sure to give satisfaction. This applies equally to the outside snell of the hive as to the inside fixtures.

More Included at Our Prices. In comparing prices quoted in this catalog with others you may receive, take into consideration what you get at the prices quoted. Our hives, besides being of superior workmanship, are almost entirely free from knots. In cutting up the lumber into the many different things we make, and the various lengths required, we can, with little waste, cut out most of the knots. Long boards, as free from knots as you will find our hives to average, would be worth more money in the rough than we charge you for the hives all cut out ready to put together. Of course, you will find some coarse lumber in bottom-boards, and occasional places where it answers the purpose fully as well; but the hive-bodies and covers are practically clear lumber. The dovetailed corners are smoothly cut, and just the right depth.

We include tin rabbits with all our hives; also nails of a superior kind, and of just the right sizes, are included with every thing that requires them. Complete hives, include, also, comb-foundation starters for the brood-frames, as well as for surplus boxes and frames.

New Features. We call attention to the new process of making foundation, referred to under COMB FOUNDATION, on page 14. This new method, covered by patent, has worked a revolution in our foundation department, so that we are not only able to make more but a much better article than has ever been put on the market before. The Cornell smoker, although just introduced to our trade, is something that we have carefully tested for a couple of years and we can confidentially recommend it as a first-class smoker.

Prices. Instead of cutting prices on supplies, as some of our competitors have done "to get the trade," we have kept them at a fair living profit, believing that cheap goods are often dear at any price, and good goods are often cheap at any price. Our large and constantly growing business, with this policy of competition on *quality*, shows that the majority of bee-keepers appreciate our efforts.

Competition. We are always willing to meet fair and honest competition; but we do not acknowledge any goods in the line of bee-keepers' supplies to be

superior to those which we furnish and offer you in the following pages, nor can you find anywhere as full a line made in one factory.

Valuable Information. We call your attention to the condensed instructions in the last pages of this circular, on various important questions most common in the mind of beginners. While these are good as far as they go in the condensed space to which we are limited in this circular, we would not have you think that you can get along with these limited instructions. You can not afford to be without a good standard text-book if you would make a success with bees.

Bee-keeping as a Pursuit. We believe that, for the same amount of capital invested, and care in management, there is not another rural pursuit that will yield better average returns than bee-keeping. To be sure, there are localities and seasons when, with the best of management, the returns are small, or wanting entirely; but of what rural industry can you not say the same? The energetic, careful bee-keeper usually receives a good return for money and labor expended.

A Beginning. We can not recommend to any one without experience more than a small beginning, say from one to six colonies of bees, and the hives and implements needed at first. These, with a good book of instructions, such as the A B C of Bee Culture, will enable you to get the experience necessary to successful bee-keeping. After the first or second year, with a few bees you will be better prepared to enlarge your investment if you think best. If you should invest heavily at first, and, because of inexperience or other unfavorable circumstances, should not make the success you expected on the start, the result with most people would be that they would give it up entirely; while if you proceed carefully and with perseverance, you are bound to succeed.

Beginner's Outfit. If we should go no farther, there are a good many beginners who would not know just what, among the many things shown in this catalog, they would need to order for a beginning. There are some things that you can not well get along without; and there are others which, although not absolutely necessary on the start, are nevertheless very convenient to have, if you can afford it. Then there are other things, the need of which will manifest itself as your stock of bees and experience increases. In order to assist you to a judicious beginning, we put up an outfit consisting of the hives and implements necessary for a start of two or three colonies of bees. This consists of the following, and is styled our

Beginner's Outfit No. 1.

1 A B C of Bee Culture, cloth.....	\$1 25
1 No. 2 veil.....	50
1 Clark's smoker.....	50
5 No. 1 Dov. hives, P. W., complete in flat.....	6 00

All shipped together, the price will be \$8.00. Nails for hives and foundation-starters for frames and sections, as well as full directions for putting the hives together, are always included. If you would prefer, to have one hive all put together as a guide in nailing the others correctly, we will include an extra hive, all put up complete, with a full sheet of foundation in three of the frames, for \$2.00 extra, making the Outfit No. 1 complete with 6 hives, one of the 6 being put up complete, and the others in the flat, \$10.00. For those who can afford it, we would advise, in addition to the above, the following tools, which will be found very convenient if not quite indispensable:

Daisy foundation-roller.....	\$ 15
Daisy foundation-fastener.....	1 00
1 spur wire-imboder.....	15
5 lbs. medium brood foundation.....	2 40
1 qt. paint for hives.....	45
1 Alley's queen-trap.....	35
1 Porter bee-escape and board complete.....	50

Total additional supplies, \$5 00

These, added to Outfit No. 1, compose our Beginner's Outfit No. 2, and costs, complete with extra hive, put up, \$15.00; without extra hive, \$13.00. These goods (except the hive put up) go at third-class freight, and weigh less than 200 lbs., and the freight will be from 25 cents up to 4 or 5 dollars, depending on the distance. To most points in this and near-by States the charges will be less than \$1.00 on either outfit.

HIVES.

Size of Hives.

Before describing our hives a few words regarding sizes may not be amiss. In the first place, the Langstroth frame, $9\frac{1}{2}$ in. deep by $17\frac{1}{2}$ long, has been, by common consent, accepted as the standard for the United States, Canada, West Indies, Mexico, Australia, and New Zealand, in so far as there is any accepted standard at all. This size of frame, aside from the fact that it is standard, has some decided points of merit. It tiers up well; being shallow, it is easily withdrawn from the brood-nest, and hence is more easily handled than a deep frame; it brings the brood up close to the surplus, and gives a large surface for it; and, what is of considerable importance, it uses to the best advantage a standard width of barn-boards for the construction of the hive to contain them. A deep frame, on the contrary, requires wider lumber. The size of the frame, then, regulates the length and depth of the hive, but not its width. A Langstroth hive never contains less than eight frames nor more than twelve. The eight-frame size seems to be by all odds the leader, by ten to one, of all the rest put together; for, indeed, it seems to be the best adapted for the most of the localities in the North, where there is a short honey-flow of three or four weeks, with nothing else for the whole season, but perhaps a little fall honey. A larger hive for such localities will contain brood and honey mixed together in an unmarketable shape, with no honey in the supers. The eight-frame size is just large enough for the requirements of the average queen; and if she fills up the brood-nest, the surplus will be crowded just where we want it—in the supers. But it is folly to insist that the eight-frame size is best for all localities. In the South and the far West, especially in Texas, Florida, and California, also in Cuba, where there are prolonged honey-flows, a larger hive, such as ten or twelve-frame Langstroth, seems to be in some demand, although the eight-frame size is used very successfully as a two-story hive in these same places. The ten and twelve frame sizes seem to be a little too heavy to handle all in one body, and hence some prefer to have their large hives in two parts, or bodies, each of eight-frame capacity. This enables them to handle their hives in halves. It may be said, in this connection, that the large hives of the twelve and sixteen frame capacity, whether all in one brood-nest or in two, are not as liable to swarm as the smaller sizes; but then, it may be said on the other hand that the surplus will be mixed up with the brood, and the sections will be empty.

While we make both the ten and twelve frame Dovetailed hives, and recognize that there is a legitimate demand for them in some localities, we strongly urge the beginner, and others who have not decided this question for themselves, to adopt the standard eight-frame size. It will probably be best adapted for your locality as it is in the great majority of them.

The Dovetailed (or Lock Corner) Hive.

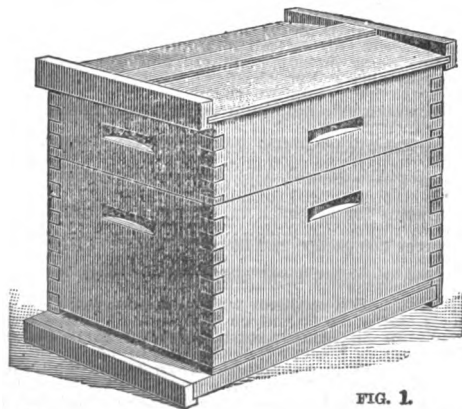
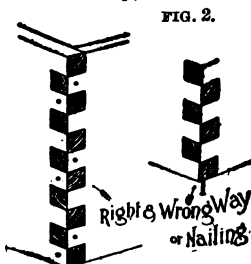


FIG. 1.

The particular feature of this hive, and hence its name, and the one which has made it rise so rapidly into popularity, is the dovetailed—or, more prop-

erly speaking, the lock corner. Unlike the old fashioned lap, miter, or halving plan, it will not gap or pull loose, but will successfully resist all climates, and even a California sun.



Our Dovetailed hives are easily put together, and when properly nailed they have five times the strength of the old-fashioned hive-bodies depending merely on the strength of the nails; hence, when once put together square, they will stay so. All our dovetailing is done on special automatic machinery that makes smooth, accurate, polished, square cuts.

Higginsville Cover.

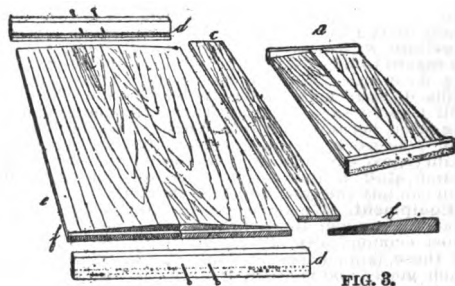


FIG. 3.

Unless otherwise requested or specified, we will put in what is known as the Higginsville cover—one that combines all the desirable features of both the old flat and gable cover. It is made of two pieces, $7\frac{1}{2} \times 20\frac{1}{2} \times \frac{1}{4}$. From one face of each of these, and one inch from one edge, a wedge-shaped slab is sawed off, in such a way as to leave the boards after planing $\frac{1}{4}$ in. thick on one edge and $\frac{1}{2}$ in. thick on the other. A cross-section will then be like *b* above. The ends are then rabbeted to $\frac{1}{4}$, to fit into a $\frac{1}{2}$ in. longitudinal groove in end-cleats, as shown at *d* and *f*.

The two thick edges of the boards are now put in contact, when the end-cleats are slipped over and nailed. The crack in the middle is covered over with a gable strip $c \frac{1}{2} \times 2 \times 20\frac{1}{2}$, and nailed, as at *a*.

It will be apparent that this cover, from the very nature of its construction, and the use of two boards, will warp or wind less than the old flat cover with its one wide board; it is flat on the under side, and gabled on the top. The shape of the cleats will also allow the piling-up of the hives—a feature highly prized in the old flat cover.

The Root Ventilated Gable Cover.

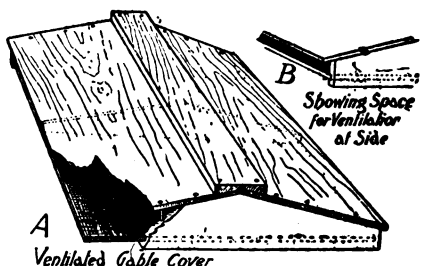


FIG. 4.

For hot climates or elsewhere, where shade from trees or vines is not available, we have constructed a double-gable cover. It renders unnecessary the shade-board and 20-lb. stone. The under side of the cover is flat, and made of $\frac{1}{4}$ in. stuff let into grooves in the end cleats. The cover boards are of $\frac{1}{4}$ -in. stuff, and at the lowest point are $\frac{1}{4}$ in. from the lower boards, and at the highest point $\frac{3}{4}$ inches

A piece is inserted half way between the two gable ends, to which both upper and lower boards are nailed. This makes the cover very strong and prevents the under boards from warping. This long open space at the sides, together with the holes at the gables, gives ample chance for the air to circulate over the inner cover but not into the hive. While it weighs but a trifle more than our Hogginsville gable cover, it is not quite so strong, nor will it permit of piling hives on top of it. But it is far better than the old flat cover—a rude shade-board and a stone that some bee-keepers admire and handle, much to their disadvantage.

We can furnish any of the Dovetailed-hive combinations with the gable cover, instead of the Hogginsville cover at the same price. In ordering, simply add the letter G to the number of the hive if gable cover is wanted.

Bottom-Board.

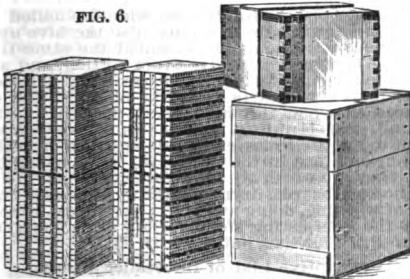
The bottom-board is made of one wide board or two narrow ones halved together. It is $14 \times 21\frac{1}{4}$ inches, and $\frac{1}{2}$ inch thick. A grooved cleat at the back end projects up and down from the board $\frac{1}{2}$ inch, and one at front end is level with board on top. A strip on each side $\frac{1}{2} \times \frac{1}{2}$ with the upward projection on cleat at the back forms the bee space, the absence of the upward projection on front cleat provides for the entrance and alighting-board $2\frac{1}{4}$ inches deep and full width of the hive. By this means the hive is not out to form an entrance, and upper and lower stories are interchangeable. This bottom may be used as a cover in an emergency, or it may be fastened permanently to the hive, if desired, by two wood screws, or long wire nails.



FIG. 5.

Dovetailed Hive Crated for Shipping.

FIG. 6.



The sides and ends of the hives are racked up into bundles as shown, with a stick between the corners at each corner, and nailed, holding them compact and solid without the expense and extra weight of crating or boxing. The bottoms form the ends and sides of a box in which are packed the covers and inside fixtures. Crating is nailed crosswise on top and bottom, making a very strong package, with scarcely any added weight and expense for crating. Our present method of making the box is much stronger than formerly.

Dimensions and Hive-rabbit.

The hive-body consists of a plain box of $\frac{1}{2}$ -inch pine lumber, planed both sides, $13\frac{1}{2} \times 20$ in. outside measure, and $9\frac{1}{4}$ inches deep, with hand-holes in

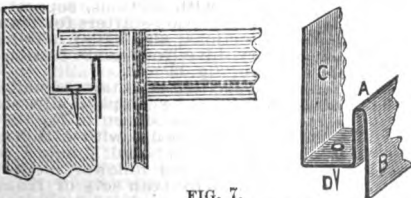


FIG. 7.

each side and end. The top inside edge of the ends is rabbeted $\frac{1}{8}$ inches by $1\frac{1}{2}$ deep. In this rabbet is nailed our improved tin rabbet, as shown in the accompanying diagram, which gives a cross-section of the upper edge of the hive, with rabbet nailed in, and a frame resting on it.

The shape of the rabbet itself apart from the hive

is shown clearly. A is the point on which the frames rest, and B is where the nails secure it to the hive. With the Hoffman there should be a free, lateral sliding motion when the frames are manipulated, and this the new rabbet permits. The old style of rabbet, besides being fragile, cut into the frames, and therefore prevented perfect lateral motion.

Frames.

There are in the standard Dovetailed hive 8 of the Hoffman self-spacing frames. See following pages for fuller description of these frames, as well as other styles, any of which we can furnish when desired, but we use and recommend the Hoffman, and send these when no others are specified.

Dovetailed Super and Furniture.

The supers are the same size as the hive body and just half the depth, $4\frac{1}{2}$ inches. Two supers may be used as one full body for brood or extracting frames, if necessary in an emergency.

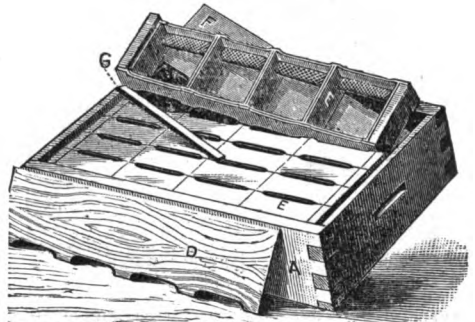


FIG. 8.—Dovetailed Super with Section Holders.

Used on hives Nos. 1, 2, 11, and 12.

These are simply wide frames having no top-bars, with thick end-bars and bottom-bars with insets corresponding to the openings in the sections. Such a holder, unlike ordinary wide frames, can be filled and emptied easily, and, like wide frames, can be shifted from center to outside, and vice versa. The bottoms of the section-holders are made $\frac{1}{4}$ inch thick, and there is a $\frac{1}{4}$ -inch bee-space above the sections in the super. This is the surplus arrangement that we recommend.

The section-holders and sections we send out with these hives are 1½ wide, unless otherwise ordered.

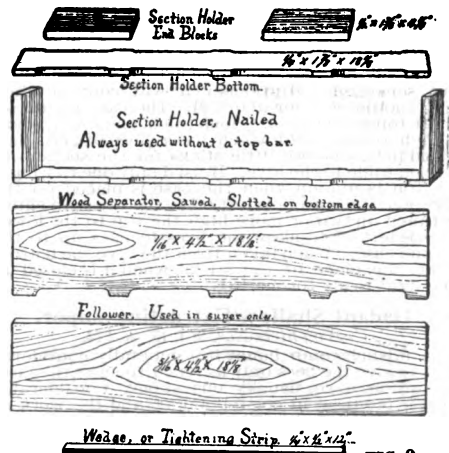


FIG. 9.

We put in wood separators, as they are preferred to those of tin. They are warmer, and the bees can walk up and down upon them, which they can not readily do on tin. This, of course, saves much "travel strain" to the fine white cappings of the honey. These wood separators, as shown, are better than the old narrow ones, in that they are slotted out on one side and are wide enough to cover the entire length of the upright edges of the sections,

as well as the horizontal edges not scored out in the sections and bottom slats where they come in contact. When the whole is keyed up with the follower and wedge, all cracks are closed up by the wide separators, and little if any propolis is daubed on the edges of the sections. With the narrow separators ($8\frac{1}{2}$ inch), even if the sections are keyed up, there are spaces left between the upright edges of the section not covered by the separator, and consequently propolis is chinked in. *Notice.*—We furnish the wide slotted separators for the section-holder arrangement only. For obvious reasons they can not be used with the other surplus arrangements.

D. Section-Case.

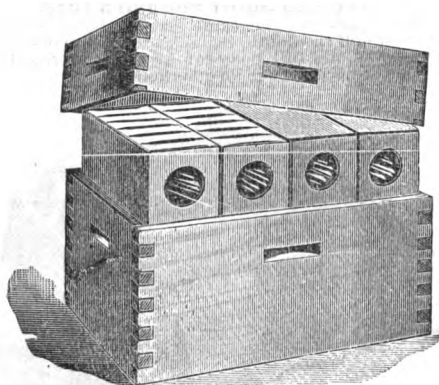


FIG. 10.—D. Section-Case Surplus Arrangements.
Used on hives Nos. 6, 7, 16, and 17.

There are a good many small bee-keepers and farmers who, having only a few hives, desire to transfer their comb honey from the hives directly to market with as little labor and expense as possible. They do not care to bother with separators or extra shipping-cases; in fact, they want to sell the honey in the same cases in which it is stored in the hives. The D. cases (after Danzenbaker, who introduced them) are designed to fill this want. They are glassed on one end, and simply raising the super, as shown in the cut, reveals at a glance what the bees are doing, without in the least disturbing them. Four of these cases just go in one of the regular 8-frame Dovetailed-hive supers without the tin rests, and make up our No. 6 and 7 combinations. Each case is $4\frac{1}{4} \times 4\frac{1}{4} \times 12$ inches, outside measure, with a $2\frac{1}{2}$ -inch round hole in one end with an inset to receive a piece of glass three inches square on the inside. It holds 6 sections $1\frac{1}{2}$ inches wide, without separators. The honey it will contain when full should sell for about \$1. The case includes 2 sides, top and bottom, $\frac{1}{2}$ inch thick, and 2 ends scant $\frac{3}{4}$ inch thick, one of which has a piece of glass fastened in it, and two little sticks for the sections to rest on while in the hive. If used only one tier high, the top is put on when the case is placed on the hive, and the bottom is left off so the bees can enter. If tiered up two or more high the top to the lower ones is left off to allow the bees to pass up to the second case. When taken from the hive the bottom takes the place of the sticks, when it is closed up bee-tight ready for market.

Dadant Shallow Extracting-super.

Used on hives Nos. 3, 4, 13, and 14.

In raising comb honey it is generally considered best to give the bees only as much room as they can occupy at once, usually one super. Considerable heat is required in comb-building and the work of the hive; and if given only the amount of room they can easily occupy they will work with better effect than if given twice as much room as they need. The same argument will apply in securing extracted honey; but as the full-sized frames are generally used for this purpose, it was not so easy to contract the amount of space to the capacity of an ordinary super. For this reason there seems to be a demand in certain quarters for shallow extracting-supers. To meet this demand with the regular Dovetailed hive, we are making shallow extracting-frames, $4\frac{1}{4}$ inches deep, outside measure, like the full-depth Hoffman frames, without a comb-guide, and giving

about 4 inches in depth of comb surface. By putting 8 of these in an ordinary super (the same super used to hold $4\frac{1}{4}$ sections) without follower, and spaced $1\frac{1}{2}$ inches from center to center, you will have an extracting-super. There will be more frames to handle; but the uncapping-knife, it is argued, will easily reach clear across the frame, and the cappings can be pared off very rapidly; besides, two of these frames will go in the place of one L. frame, in an ordinary extractor. While the majority of bee-keepers prefer full-depth frames there are some in this class who use half-depth supers for weak colonies. We offer these hives with one or two supers, as Nos. 3, 4, 13, and 14 combinations.

N. B.—Of course those shallow extracting-supers may be used as shallow broad-chambers *a la* Heddon; but we do not recommend them for such, as the bees do not seem to breed as well in them.

Dovetailed T Super with T Tins.

For those who prefer the T super we will furnish either the regular super with $4\frac{1}{4}$ inch 7 to foot sections, or the Dovetailed T super made especially for $4\frac{1}{4}$ sections, and to fit the regular Dovetailed hive, at the same prices as other Dovetailed comb honey hives complete, and empty, nailed, or in flat.

Hive-stand.

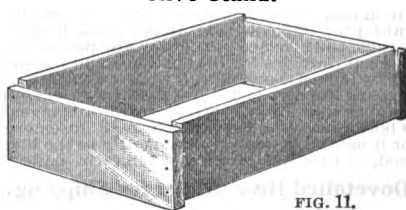


FIG. 11.

It is made of cull lumber, $4\frac{1}{4}$ wide, lap nailed together as shown. These stands raise the hive up to convenient working distance, and at the same time keep the bottom of the hive from rotting, and also keep the hive itself dryer; and grass, when it does grow up, is not nearly as apt to obstruct the entrances as when the hive rests directly on the ground. This is quite a feature to a bee-keeper who is apt to let the grass get too long in his apiaries. For our own use in the apiary we have concluded that they are worth all they cost, in the saving of the bottom-boards, dryness of the hive, and comfort of working, doing away, to a very great extent, with the everlasting stooping, so wearisome to the back. Price 10c each nailed; 6c in flat.

Descriptive List of Dovetailed Hives.



FIG. 12.

ers for frames and sections, and nails.

No. 1E is the same hive leaving out sections and starters; everything else mentioned is included.



FIG. 13.

No. 2E is No. 2, with sections and starters omitted. No. 3E dovetailed hive, 8-frame complete, a $1\frac{1}{4}$ -story hive for extracted honey, as shown in Fig. 12, includes bottom, cover, and body, with 8 Hoffman full-depth frames and division-board; 1 super with 8 shallow Hoffman frames and follower, including nails, foundation-starters for both sets of frames, and No. 13 zinc honey-board.

No. 3E is the same hive leaving out foundation-starters and honey-board.

No. 4 is a 2-story hive, furnished like No. 3, with one more super and contents added to each hive, as shown in Fig. 13.

No. 4E is the same as No. 4, leaving out starters and honey-board.



FIG. 14.

No. 5 Dovetailed hive, 8-frame, complete, is a 2-story hive for extractor, and includes bottom and cover, two bodies with 16 Hoffman frames and two division-boards; nails, foundation-starters for frames, and No. 13 zinc honey-board, shown in Fig. 14.

No. 5E is the same as No. 5, with starters and honey-board omitted.

No. 6 is the same as No. 1 except that it has 4 D cases with 24 sections and starters for same (no separators) instead of section-holders.

No. 6E is No. 6 with sections and starters omitted.

No. 7 is the same as No. 6, except that it has 8 D cases complete, and one extra super.

No. 7E is No. 7 with sections and starters omitted.

Price List of Dovetailed Hives.

Order by number and carry out the price.

Number	Nailed and Painted each.	In flat.	Weight of 10.
		1	10
No. 1 Dov. hive complete	1.70	1.39	12.00 290 lbs.
No. 1E " " empty...	1.40	1.10	10.00 270 "
No. 2 " " complete	2.30	1.70	16.00 370 "
No. 2E " " empty...	1.80	1.35	12.50 330 "
No. 3 " " complete	1.80	1.30	12.00 270 "
No. 3E " " empty...	1.40	1.10	10.00 260 "
No. 4 " " complete	2.10	1.60	15.00 330 "
No. 4E " " empty...	1.80	1.35	12.50 320 "
No. 5 " " complete	2.00	1.50	12.00 330 "
No. 5E " " empty...	1.65	1.25	11.50 320 "
No. 6 " " complete	1.70	1.30	12.00 280 "
No. 6E " " empty...	1.40	1.10	10.00 270 "
No. 7 " " complete	2.30	1.70	16.00 350 "
No. 7E " " empty...	1.80	1.35	12.50 330 "

Write for prices on larger quantities.

Five hives furnished at the same rate as ten.

Any of above hives furnished with frames pierced, and wire included without extra charge if so ordered.

If wanted, add P. W. to the number in ordering.

Honey-boards may be added at

price in table of honey-boards.

Hives furnished with gable covers

(Fig. 15) instead of flat cover same

price if so ordered. If wanted, add G

to the number in ordering.

Hives with tinued covers, 5c each

extra. We can not recommend them.

The tin ordered separately, 10c each.



FIG. 15.

Ten and Twelve Frame Dovetailed Hives.

We will make the Dovetailed hive 10-frame instead of 8-frame, in any of the above numbers, as follows:

Nailed and painted, complete, 30c each extra.

In flat, complete, 25c each extra.

In flat, empty, 20c per hive extra.

12-frame hives instead of 8-frame, nailed and

complete, complete, 60c each extra.

In flat, complete, 50c each extra.

In flat, empty, 40c each extra.

Price List of 8-Frame Dovetailed Hive Parts.

Name and Description.	one	In flat.	Weight of 10.
	one	10	
Bottom-board.....	.15	.10	1.00 45 lbs.
Cover, flat or gable.....	.20	.15	1.50 40 lbs.
Body, empty, with rabbets...	.40	.30	2.50 30 lbs.
Body, frames and div. board...	.65	.55	5.00 120 lbs.
Body with frames, starters, and division-board.....	.75	.60	5.50 125 lbs.
Super with flat tins only.....	.20	.15	1.20 40 lbs.
No. 2E, 4E, or 7E, super, empty	.40	.30	2.50 60 lbs.
No. 2 or No. 7, super complete	.60	.45	4.00 75 lbs.
No. 4 super comp. with start's	.50	.35	3.00 60 lbs.
Body with frs. filled with fdn.	1.50	1.30	12.00 130 lbs.
No. 4 super with frames filled with foundation.....	.80	.70	6.50 65 lbs.
No. 2 or 7 super with sections filled with foundation.....	.75	.60	5.50 80 lbs.

No. 2E super includes section-holders, separators, follower and wedge, and No. 2 the same with sections and starters added.

No. 4E super includes shallow Hoff. frames, and div. board; and No. 4 the same with starters added.

No. 7E super includes D. cases, and No. 7 the same with sections and starters.

Nails included with all parts of hives, as well as with complete hives.

Ten-frame-hive parts advance 20 per cent.

Twelve-frame-hive parts advance 40 per cent.

Dovetailed Winter Case.

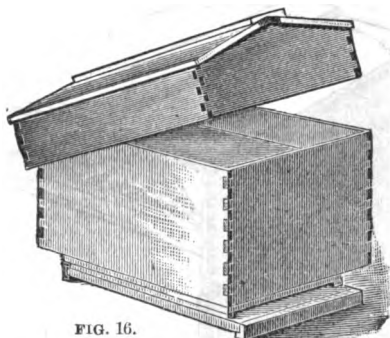


FIG. 16.

There are those who, having single-walled hives, desire something which, at a slight additional expense, will convert their hives into double-walled abodes for bees during the winter. Again, there are others who winter indoors who wish something cheap and serviceable in the way of a protection to put over the hives after they are set out in the spring, and here it is.

This is simply a shell made of $\frac{3}{4}$ -in. lumber, dovetailed at the corners, and is large enough so as to leave 1 $\frac{1}{2}$ -inch space between the sides and ends, and deep enough with the telescopic cover to allow a space of five inches on top for packing. The cover, also of $\frac{3}{4}$ -inch lumber, telescopes over the shell, and is the same as is used on the one-story chaff hive. The opening in the bottom of the case, between the hive and case, is stopped up with padded sticks which are nailed to the bottom inside edge of the case. We do not think it necessary to go to the expense of an extra bottom-board for a winter case. It is not the bottom, but the sides and top of the hive, that should be kept warm. To prepare for winter, the case is set over the hive as shown in the cut above, and packing material, such as sawdust, planer shavings, chaff, etc., is poured around on top and at the sides. Pour on five or six inches of packing on top, and then set the telescope cover over, and the bees are ready for winter.

Prices of Dovetailed Winter Case.

New dovetailed winter case, including cover and padded sticks and nails, in flat, 65c each; 10 for \$6.00.

Winter case, nailed and painted, 15c each extra. These are large enough to go over 10-frame Dovetailed and Simplicity hives, allowing only $\frac{1}{2}$ inch space on each side.

Tin Rabbets for Hives.

These are of folded tin, and are used for frames to rest on, as in Fig. 7. The price will be as follows:

Rabbets for Dov. hive, 12 and 14 in., \$1.00 per 100.

Same style rabbets will fit Simplicity and other similar hives of same style.

Rabbets of other lengths will be 1 cent per foot.

Rabbets are included with all our hives.

Paint for Hives.



FIG. 17.

Price, gal., \$1.50; half-gal., 80c; qt., 45c; pint, 25c.

We are having put up for us a specially prepared paint for bee-hives, already mixed. It is composed of pure white lead and zinc mixed with pure linseed oil, and it will outlast any ordinary white mixture that you can get, besides being quite reasonable in price. We have it put up in pints, quarts, half-gallons, and gallons, in tin, already mixed for use. A gallon will cover about 300 feet of surface two coats, so that you need a gallon for 20 No. 1 Dovetailed hives.

Dovetailed Chaff Hive.

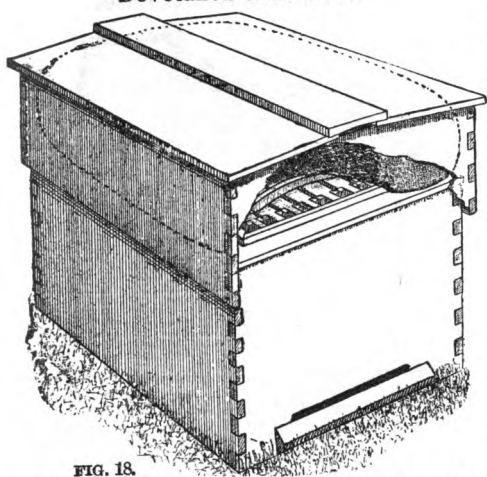


FIG. 18.

The time was when two-story chaff hives were the only kind in existence. Besides being heavy, awkward to work over, and unhandy to get at the lower story without removing the contents of the upper one, they were expensive. Neither was it necessary to have the upper story double-walled and packed when the bees could occupy only the lower story. A number of years ago we introduced our one-story chaff, so constructed as to take all the furniture and upper story of the single-walled hive. Since the introduction of the Dovetailed hive and furniture, the hive was changed so as to suit the new fixtures. The expensive and heavy corner posts were discarded for the very neat dovetail or lock corner, which makes both a lighter and stronger hive. It will take for an upper story any of the eight-frame Dovetailed hives, covers and inside furniture; in fact, it may be used in every way the same as a single-walled hive, with the very important advantage of not having to be carried in and out of the cellar, and is at all times, with a few minutes' preparation, ready for winter. The cover is 7 inches deep, and telescopes clear over the water-table and all. This effectually prevents rain from beating in, and the water from seeping up into the cushion, as we found was apt to be the case with the old cover resting on the water-table. This new cover is deep enough so as to still telescope over the hive, with a regular super on top; and in the production of comb honey it affords a very important protection; but if two supers are on, it will still act as an excellent umbrella shade-board.

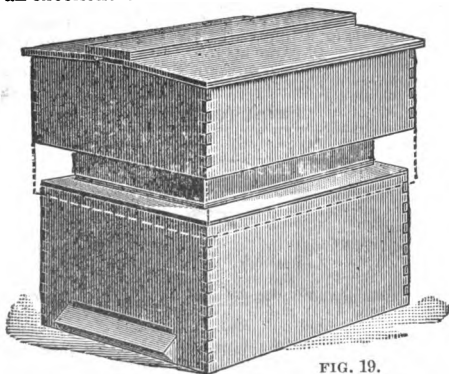


FIG. 19.

The space between the walls is 2 inches. There is also a double-bottom and tarred paper to prevent rotting. The hive weighs only a few pounds more than the single-walled hive with bottom-board. Its inside dimensions are the same as the Dovetailed hive, and its outside dimensions are $17\frac{1}{4} \times 23\frac{3}{4}$. It can be loaded into a wagon with almost as much economy of space as the single-walled hive.

Descriptive List of Dovetailed Chaff Hive.

No. 11 Dov. chaff hive, 8-fr. complete, as shown Fig. 20, is a $1\frac{1}{2}$ -story hive for comb honey, with body and telescope cover and super cover, 8 Hoffman frames and division-board, one super with follower and wedge, 8 section-holders, 5 slotted separators, sections, foundation starters for frames and sections, and nails.

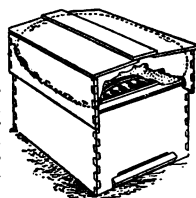


FIG. 20.

No. 11a is No. 11 with sections and starters omitted.

No. 12 Dov. chaff hive is No. 11 with another super (No. 2) added. See Fig. 21.

No. 12a is No. 12 with sections and starters omitted.

No. 13 Dov. chaff hive is a $1\frac{1}{2}$ -story hive for extractor shown Fig. 20. It includes 8 full-depth Hoffman frames and division-board; a super with 8 shallow Hoff. frames and div. board; starters for both sets of frames, No. 13 zinc honey-board, and nails.

No. 13a is No. 13 with fdn. starters and honey-board omitted.

No. 14 Dov. chaff hive is No. 13 with another super (No. 4) added, as shown, Fig. 21.

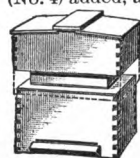


FIG. 21.

No. 14a is No. 14 with starters and honey-board omitted.

No. 15 Dov. chaff hive, 8-frame complete, is a 2-story hive for extractor, with Dov. body for upper story; 16 Hoffman frames, 2 division-boards, fdn. starters, and No. 13 zinc honey-board, and nails.

No. 15a is No. 15 with fdn. starters and honey-board omitted.

No. 16 Dov. chaff hive is same as No. 11, with four D. cases for super instead of section-holders, and with sections, starters, and nails, but no separators.

No. 16a is No. 16 with sections and starters omitted.

No. 17 Dov. chaff hive is No. 16 with another super (No. 7) added, as shown, Fig. 21.

No. 17a is No. 17 with sections and starters omitted.

Price List of Dovetailed Chaff Hives.

Order by number and carry out the price.

Number and Name.	[Nailed & painted,		In flat,	Weight of 10.
	one	one	10	
No. 11 Dov. chaff hive, comp.	2.70	2.00	18.00	410 lbs.
No. 11a " " " empty	2.40	1.80	16.00	390 lbs.
No. 12 " " " comp.	3.30	2.40	22.00	480 lbs.
No. 12a " " " empty	2.80	2.05	18.50	450 lbs.
No. 13 " " " comp.	2.60	2.00	18.00	400 lbs.
No. 13a " " " empty	2.40	1.80	16.00	390 lbs.
No. 14 " " " comp.	3.10	2.30	21.00	450 lbs.
No. 14a " " " empty	2.80	2.05	18.50	430 lbs.
No. 15 " " " comp.	3.00	2.20	20.00	450 lbs.
No. 15a " " " empty	2.65	1.95	17.50	430 lbs.
No. 16 " " " comp.	2.70	2.00	18.00	400 lbs.
No. 16a " " " empty	2.40	1.80	16.00	390 lbs.
No. 17 " " " comp.	3.30	2.40	22.00	480 lbs.
No. 17a " " " empty	2.40	2.05	18.50	450 lbs.

Five hives furnished at the same rate as ten.

Any above numbers with Higginville or gable cover, instead of telescope and super cover, 25 cents per hive less, when so ordered.

On hives with two supers the telescope cover does not reach down to the rim by 3 inches, see Fig. 19. We will furnish extra-deep telescope covers, 4 inches deeper, at 10c each extra, if so ordered.

Telescope covers are so large that the addition of tin will cost 10c each. The tin ordered separately, 20c each cover.

Ten-frame hives are furnished at an advance of

40c per hive, nailed and painted, complete.

30c per hive, in flat, complete.

25c per hive, in flat, empty.

Price List of Dovetailed Chaff-Hive Parts.

Name and description.	[Nailed and painted,		In flat,	Weight of 10.
	one	one	10	
Dovetailed telescope cover.....	.45	.35	3.00	90 lbs.
Super cover, tin bound.....		.10	1.00	10 lbs.
Dov. chaff hive, body only.....	1.20	.80	7.00	200 lbs.
Outside body, or winter case...	.40	.30	3.00	70 lbs.
Rims for Dov. chaff hive.....		.12	1.00	20 lbs.
Inside body and bottom.....		.26	3.00	50 lbs.
Outside bottom & tarred paper.		.13	11.00	44 lbs.

Ten-frame-hive parts, 20 per cent advance.

Brood-frames.

Some prefer the loose, or frames not fixed, and others the fixed or spaced frames. In order that all may be accommodated we offer different styles of both.

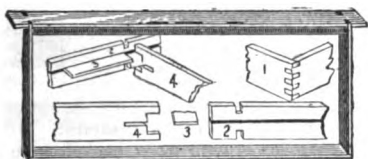


FIG. 22.—All-wood Frames.

These are the same that we have sold for many years. They are not proof against burr-combs nor against sagging of the top-bar, unless braced with wire. Their only merit is cheapness.

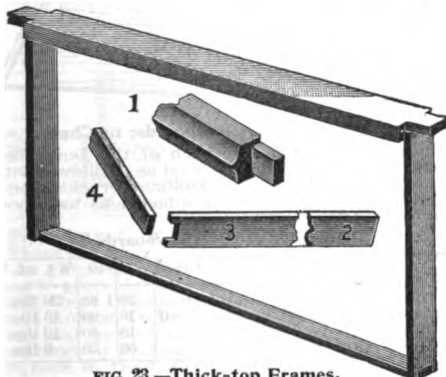


FIG. 23.—Thick-top Frames.

These, as the name indicates, have a thick top-bar $1\frac{1}{2}$ wide and $\frac{1}{2}$ deep, including molded comb-guide. The peculiar feature of this thick-top frame is, that the comb-guide is molded out of the top-bar itself; that is, it is a part of it. See cut. The thickness, therefore, of the top-bar on the side is $\frac{1}{2}$ inch, and the comb-guide makes it $\frac{1}{2}$. The bottom-bar is $\frac{1}{2} \times \frac{1}{2}$. To such a bar the bees build their comb down better. This makes a very strong frame, and is practically free from burr-combs. Experiments in our own as well as in scores of other apiaries, demonstrate that, when properly spaced $1\frac{1}{2}$ from center to center, with a bee-space not more than $\frac{1}{4}$ inch above the top-bar, there are no burr-combs, or practically none. For the honey-producer not desiring fixed frames, these will be his best choice; but if you wish to know which ones we recommend, we would say the

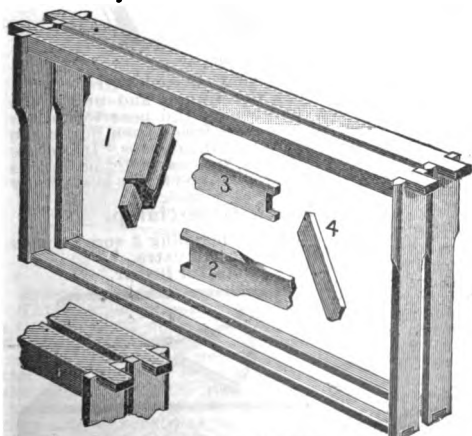


FIG. 24.—Self-spacing Hoffman Frames.

Fixed, or self-spacing frames, in some form or other, are rapidly growing into favor among pro-

gressive bee-keepers. After much study and experimentation on a large scale we have adopted for all our hives the Hoffman frame. They are always ready for hauling over good or poor roads, without any special preparation in fastening the frames. Beginners don't make the blundering work in spacing them in the hive, the combs are straighter, and with those who are expert in their use they can be handled in less time.

As you will notice from the cut, our Hoffman differs from the original in having a *straight* top-bar, and notched at the ends, as shown, to give finger-room for handling; in other respects it is the same. For the Langstroth frame this is almost a necessity. It is intended to be suspended on a tin rabbet, as shown under hives. As thus modified it is much better for the Dovetailed hive than the original frame with top-bars widened at the ends. The end-bars touch on each side only $\frac{1}{4}$ inches, one side being V'd to a blunt knife-edge, and the other is left square, as shown in the cut. This prevents the bees from sticking the frames too much with propolis, and at the same time prevents bee-killing to a very great extent, even when the frames are handled carelessly. When the frames are handled properly, and smoke is blown down between the frames where the end-bars come in contact, few if any bees will be killed. The top and bottom bars are just the same as those used in the thick-top frame. We prefer this frame to all others, and therefore put it in all our hive combinations unless otherwise specified. It can be used in any standard L. hive having no tin rabbets.

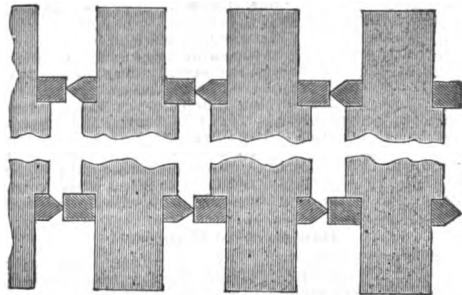


FIG. 25.

N. B.—In putting these frames together, be sure to have the V'd edges on the end-bars come on the diagonally opposite sides, and always put them together the same way. The cut above shows a section ($\frac{1}{4}$ size) of each end of the frames with end-bars as they should be always.

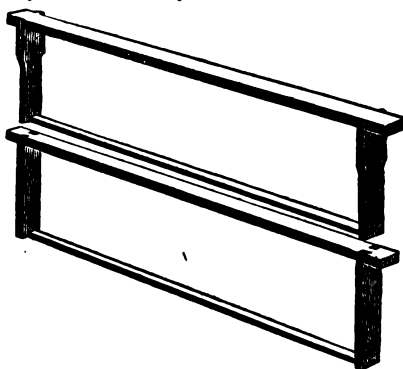


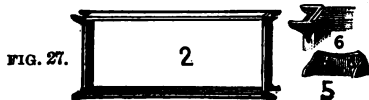
FIG. 25.—Shallow Extracting Frames.

These are made like the all-wood frames, but with top-bar $1\frac{1}{2}$ inch wide and $\frac{1}{4}$ in. thick; no comb-guide. Bottom-bar is $\frac{1}{2}$ wide and $\frac{1}{4}$ thick; the end-bars may be either $\frac{1}{2}$ by 1 in. or Hoffman self-spacing style as desired. When no preference is stated we send the Hoffman ends for self-spaced frames. If you decide you do not want them spaced you can easily shave off the projection.

Van Deusen Reversible Spaced Frame.

These are fixed frames practically free from burr-combs, and are reversible. They stand on inside tin

rests nailed on the bottom inside edge of the hive ends. They are spaced by little cast-iron corners having ears which hold the frames equally distant



from the ends of the hive and from each other. A corner is shown at 5, and how put on at 6. Propellers has no effect upon their mobility; and for fixed frames they are the most easily handled of any we know of. We have examined and tested many styles of reversible frames, but we consider these by far the best. This is the only standing frame we sell.

Price List of Standing-frames.

Name	Put up. 100	In flat.			Wt. of 100
		10	100	1000	
All-wood frames.....	2.00	.15	1.20	10.00	25 lbs.
Thick-top frames.....	2.00	.18	1.50	12.50	35 lbs.
Hoffman frames.....	2.50	.20	1.80	15.00	35 lbs.
VanDeusen rev. frames.....	3.50	.30	2.50	23.00	40 lbs.
Shallow extr.-frames (4 1/2 in.)	2.00	.15	1.20	10.00	22 lbs.
VanDeusen corners (iron) 1 1/2 spacing		.30	2.70		32 oz.

Nails, included with all frames, to nail them up.

Odd-Sized Frames.

The frames described on the previous page are all the Langstroth size, that fit all the hives we sell, and measure outside 9 1/2 x 17 1/2 inches, top-bar 19 inches. We will make other sizes, when wanted, of all but the Hoffman frames at the same prices as above, with 50 cents on the lot added for setting our machines. For the Hoffman frames, odd size, the charge will be \$1.00 on the lot for setting machinery. We do not care to accept orders for less than 100 odd-size frames of any kind. Any of the above frames, put up and wired, will be filled with a sheet of light brood foundation at 12 cents each extra, or \$10.00 per 100. The price of odd-sized frames filled with foundation will depend on their size, and will be quoted on application.

How to Wire Frames.

After testing carefully several different methods of wiring frames, duly considering the reports from others, we have come to the conclusion that horizontal wiring is the most simple and satisfactory of all. The end-bars should be pierced by four holes equally distant, before nailing. The wire should be threaded through all the holes, and drawn just tight enough to take up the slack (be sure not too tight or the foundation will buckle). At each hole of the terminal wires, drive a small tack; and around them wind the loose ends of the wire, and drive the tacks up to the heads. The wires should now be parallel to the top and bottom bars, and 2 inches apart, the first wire one inch from the top-bar, and the last wire 1/4 inch from the bottom-bar. Cut the foundation 1/8 inch shallower than the inside depth of the frame. Lay the top edge against the comb-guide and fasten by rolling it with the Daisy foundation-roller, as shown elsewhere. The wire should be imbedded in the regular way, and the work is done. We always use wired frames, and recommend others to do so; i. e., if they intend to use full sheets of foundation. As the majority do not, we pierce the end-bars only when so ordered. Our price for this is, including sufficient wire, 10c per 100 extra on the price of the frames.

Tinned Wire.

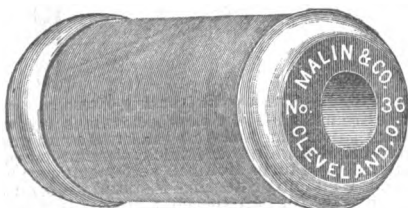


FIG. 28.

No. 30 tinned wire seems to be the most suitable of any for wiring frames. An occasional customer prefers it a little finer, and once in a while it is wanted coarser. All things considered this size is

best. We have it wound for us in large quantities, and are prepared to furnish it in almost every style. We keep it in stock of the following sizes:

Price List of Tinned Wire.

SIZES FURNISHED.	Price each	doz.	Post
1-oz. spools No. 30 tinned wire.....	\$.03	\$ 25	.02
1/4-lb. " " " " " " " " " " " "		10	.90
1/2-lb. " " " " " " " " " " " "		15	1.50
1-lb. " " " " " " " " " " " "		25	2.40
5-lb. coils " " " " " " " " " " " "		70	

Chaff Division-boards.

These are made of thin wood, packed with chaff, and have cloth cushion bottom and ends, that they may fit closely in any hive, and be easily removable

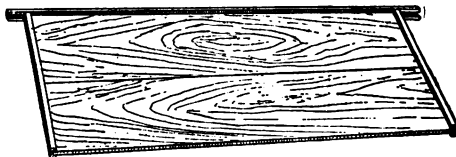


FIG. 29.—Plain Division-boards; no Chaff.

One of these is put into each of the Dovetailed hives we send out, and is used as a follower with spacing-frames, such as the Hoffman or closed-end. They have the same outside dimensions as brood frames, and are 1/8 inch thick.

Price List of Division-boards.

	Price	1	10	Wt. of 10
Chaff division-board, complete...	20	1	80	20 lbs.
Chaff division-board, flat, no chaff	10		90	13 lbs.
Plain division-board, nailed.....	10		80	10 lbs.
Plain division-board, flat.....	06		50	9 lbs.

Super Covers.

Price for 8 and 10 frame hives, 10c each.

With covers like the telescopic, which leaves more than a bee-space above the sections, you need a super cover. Some use an enamel sheet, but the most satisfactory cover is a thin board bound on the ends to prevent warping. We make these 1/4 inch thick and bound with tin. They should be supported a bee-space above the sections.

Hill's Device.



FIG. 30.

Price 50 cts. for 10; by mail, 5c each extra.

This is placed over the frames and under the cushion to form a chamber for the bees to cluster in, and to allow them to pass freely from one comb to another over the top of the frames. It is quite necessary in cold climates to use something for this purpose, and this device fills the bill the best of any thing.

Van Deusen Hive-clamp.

Price 35 cts. for 10 pair, including 2 screws with each clamp; postage, 3c per pair extra.

Price without screws, 30 cts. for 10 pair.

These are very convenient for fastening loose bottoms when you want to move the hives. They may also be used to hold the cover on, or two bodies together. They are of malleable iron. A nail will answer for the clamp to rest on when open, and is less expensive than a screw.



FIG. 31.

Perforated Zinc.

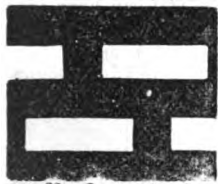


FIG. 32.—Our make zinc.

This is used between the upper and lower stories, to prevent the queen from going above. It is also used in entrance-guards, for queen and drone traps, etc. The size of the perforations in our make of zinc is $\frac{1}{16}$. This is found to effectually stop all queens and drones from passing through, but allows the workers to pass easily without hindrance.

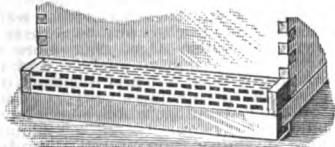
Price List of Perforated Zinc.

Zinc strips, 1 row holes, $\frac{1}{8} \times 18$ to $19\frac{1}{4}$ in., per 100...\$ 80
Perforated zinc sheets, 28×96 inches, each 1 20

Less than a sheet of zinc, 10c per foot. By mail 10c per foot extra. Zinc strips may be sent by mail for 1c each for postage.

Bee-Entrance Guards.

FIG. 33.



Price, by mail, 10 cts. each; 10 for 50c; not prepaid. These are placed in front of the entrances for various purposes. They may be used in swarming time to prevent the queen from going out, or on the hives whose drones are not such as you want to breed from at a time when you are rearing queens. They may be used for ridding the hive of undesirable drones by placing on the hives and shaking all the bees in front, allowing the workers to pass in, while the drones are left on the outside and then destroyed. Be careful, however, to see that your queen is safe.

Alley's Queen and Drone Trap.

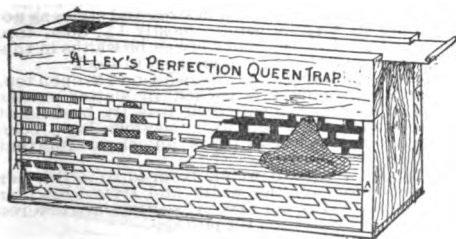


FIG. 34.

Price 50c; 10 for \$4.00; by mail, 15c each extra.

This has been improved, and made long enough to reach clear across the entrance of the eight-frame Dove-tailed hive. Two cones are now used instead of one, and perforated zinc is inserted in the back, let in a bee-space deep in the rear, as shown in the bottom figure. The perforated zinc in front extends nearly to the top of the trap, so that loaded bees may pass through the lower part of the trap into the hive; or if they should happen to alight upon the zinc, in front of the upper compartment (which they are liable to do during the height of the working season), they can pass onward through the zinc shown in the back, and into the hive. This trap embodies all the latest im-

provements made by the inventor, Mr. Alley, and leaves but little to be desired.

It is designed to automatically catch and cage the drones in an apartment by themselves. They can then be carried to another apiary, or be destroyed, as circumstances require. The trap will also catch the queen when a swarm issues, and hold her confined until the apiarist can give her his attention. As she can not get away, the bees will in all likelihood return into the hive. Or if you happen to be on hand when the swarm comes out, the trap with the queen can be placed among the flying bees. The latter will probably cluster about the queen, and they may then be hived.

Honey-Boards.

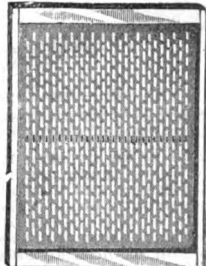
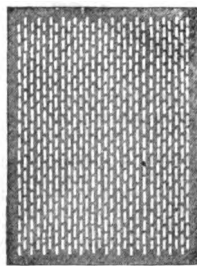


FIG. 35.—Nos. 1 and 11. FIG. 36.—Nos. 2, 12, and 13.

Honey-boards are used either for preventing burr-combs, or for excluding the queen from the surplus-honey apartment. Almost any of the honey-boards we offer will answer the purpose of preventing burr-combs, but if brood-frames are used with top-bars $1\frac{1}{4}$ in. wide and about $\frac{3}{8}$ to $\frac{1}{2}$ in. thick, with a bee-space of $\frac{1}{4}$ inch and not more than $\frac{3}{8}$ in., a honey-board will hardly be necessary for the purpose of preventing burr-combs. Their chief use is for confining the queen in the brood-chamber, and we have had many testimonies from large bee-keepers of their value for this purpose, particularly for extracting. For this purpose the preference seems to be for the styles like Figs. 35 and 36, with uninterrupted perforations. Fig. 35 may be used where you are not particular about preserving the bee-space; Fig. 36 where a bee-space on one on both sides of the board is desirable, and can not be obtained in any other way.

Price List of Honey-Boards.

Order by number and name, and carry out the price.

No.	Name.	Size.	Price of 10	Weight of 10
1	10-frame Unbound zinc, $14 \times 19\frac{1}{4}$...		\$1 20	9 lbs.
11	8-frame Unbound zinc, $12 \times 19\frac{1}{4}$...		1 00	8 lbs.
2	Simp. Wood-bound zinc, $14\frac{1}{2} \times 19\frac{1}{4}$...		1 50	10 lbs.
9	8-frame Slatted wood zinc, $13\frac{3}{4} \times 20$		1 50	13 lbs.
10	10-frame Slatted wood zinc, 16×20 ...		1 60	14 lbs.
12	10-frame wood-bound zinc, 16×20 ...		1 60	11 lbs.
13	8-frame wood-bound zinc, $13\frac{3}{4} \times 20$		1 50	10 lbs.

Less than 10 boards furnished at same rate.

Nos. 1, 11, and 2 are used inside the hive, their outside dimensions being the same as the inside dimensions of hive less $\frac{1}{8}$ inch. No. 2 has bee-space both sides; Nos. 1 and 11 no bee-space.

Nos. 9, 10, 12, and 13 reach to the outside edge of hive, and have bee-space one side only.

All honey-boards listed are queen-excluding.

For unbound zinc honey-boards larger in size than No. 1, add 20c for setting the machine; then for each additional inch or fraction thereof in width, add 1c each; longer than $19\frac{1}{4}$, and not over 21 inches, add 1c each; longer than 21, and not over $22\frac{1}{2}$ inches, add 2c each; longer than $22\frac{1}{2}$, and not over 24, add 3c each.

Comb-Bucket.

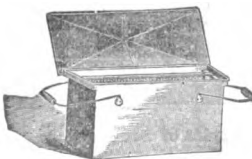


FIG. 37.

Price, for L. fr., \$1.25. Holds five loose or 4 Hoffman frames, secure from dust or robbers, and catches all the drip. It will be found to be especially valuable when extracting. In it the combs, secure from robbers, may be carried from the hive to the extracting-house.

Section Honey-Boxes.

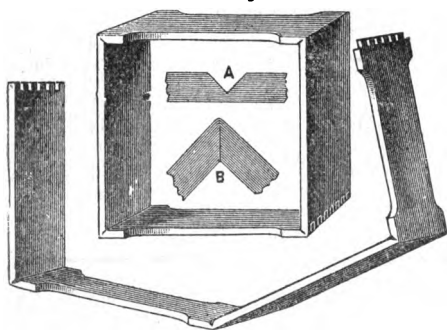


FIG. 38.—One-Piece V-groove Sections.

Samples of our double-sanded and polished sections, with samples of foundation mailed free on application.

Having an investment of thousands of dollars in special automatic machinery for making our beautiful sanded and polished sections, we are enabled to turn out a product that for finish, workmanship, and accuracy can not be excelled. The planks are first planed and then sawed up into lengths. These are run through an automatic machine that dovetails the ends, cuts the bee-entranceways, and then carries them to another machine upstairs, where they are gang-sawed into strips. Two more automatic machines take these strips, sands, polishes on both sides, and reduces them to an absolute thickness, and drops them into a truck. They are then piled into a magazine of another automatic machine for making the V cuts for folding. As the blanks leave this machine they run out on a table in a long row, and are sorted—the first quality being put into one box and the seconds—that is, the colored or cream—into another. These seconds are called No. 2 or cream, and are sold at 50c per 1000 less than the best grade.

The section in common use is $4\frac{1}{4}$ square. These are made several widths, and hold from $\frac{1}{2}$ to 1 lb. of honey, according to width; $1\frac{1}{2}$ to 2 inches wide hold 1 lb.; $1\frac{1}{2}$ to $1\frac{3}{4}$ about $\frac{3}{4}$ lb.; and $1\frac{3}{4}$ to $1\frac{1}{2}$, about $\frac{1}{2}$ lb. Sections filled with honey, when separators are used, will not weigh quite as much as the same width without separators. You will get straighter, even combs with separators than without them; but if you think you can not afford separators, and don't mind having some sections with the honey bulged out on one side, you will have less bulged honey by using sections $1\frac{1}{2}$ wide, or narrower, than you will by using wider. The usual width of sections, and the kind we always send out when the width is not specified with the order, is $1\frac{1}{2}$ inches.

In our regular dovetailed supers with section-holders, $1\frac{1}{2}$ inch, the standard section is used. Any other width can be used if the section-holders are made to match; but the size of wedge behind the follower will have to be varied accordingly. In the dovetailed T supers, any width can be used in connection with the follower and wedge.

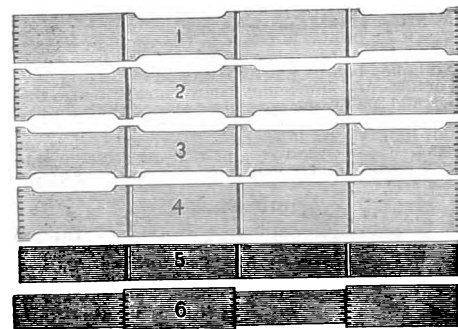


FIG. 39.—Different Styles of Sections.

Style 1, open-top, is the most common pattern, open top and bottom.

Style 2, open three sides, is recommended by the Dadants, because by using it you can have tops closed or open and the sides open.

Style 3, open all around, is open on all four sides.

Style 4, closed-top, is open on one side only.

Style 5, no openings, is used with cleated separators.

Style 6, dovetailed all around and open top.



FIG. 40.

Style No. 7, open corners, is open clear across the top and bottom, and part way down and up the sides. It is especially adapted for glassing.

Style No. 8, open corners, is the same as No. 7, but is $3\frac{1}{2}$ wide by 5 inches tall, and 7 to the foot in width. This size is used quite extensively by Capt. J. R. Hetherington and others in the East. The argument is made that the tall section shows the honey off to better advantage; and that of the two sections, the square and the tall, both of the same weight, the consumer will select the tall one because it appears to be larger. It is also urged that more sections can be put on a given hive surface, and that the combs are better filled out and attached, owing to the character of the openings. Styles 7 and 8 have the Danzenbaker openings, which he has covered by a patent.

The name in *italics* following the number is the one by which we designate each different style shown, and the name to be used in ordering.

Price List of $4\frac{1}{4}$ -inch Sections.

Name.	Price of 1000	2000	3000	5000
White, any width,	\$2 75	\$5 00	\$7 20	\$12 00
Cream, $1\frac{1}{2}$ and $1\frac{3}{4}$,	2 25	4 20	6 00	10 00
White, 50c per 1000;	250, 85c;	or 500 for \$1 50.		
Cream, 40c per 1000;	250, 75c;	or 500 for \$1 25.		

Write for special prices on large quantities.

Of white, open top, we have all widths in stock, 2, $1\frac{1}{2}$, $1\frac{1}{4}$, $1\frac{3}{4}$, 7 to foot, $1\frac{1}{2}$, $1\frac{1}{4}$, $1\frac{3}{4}$, and $1\frac{1}{2}$.

Other styles are furnished only in lots of 1000 or more, except a few sizes for which we have frequent calls.

Of cream we have only such sizes and styles as accumulate in making white, mostly $1\frac{1}{2}$, open top, and can not furnish other styles or widths in this grade, except as we may have them in stock.

When order does not specify, we send $1\frac{1}{2}$, open top.

Regular sections are packed in slatted crates which when emptied will hold just $1\frac{1}{2}$ bushels of potatoes, etc., level full, after sections have been removed, and worth 25 cents anywhere for that purpose.

Sections $4\frac{1}{4}$ square weigh from 50 to 70 lbs. per 1000, depending on the width and style. Regular open top are 60 lbs. per 1000. If sections are ordered by mail add 1 cent each for postage.

Price of Other Sizes in Stock.

Size.	Price of 500	1000	3000	5000
$4\frac{1}{4} \times 4\frac{1}{4} \times 1\frac{1}{2}$, or 7 to foot,	\$1 60	\$3 00	\$4 40	\$13 50
$3\frac{1}{2} \times 5\frac{1}{2} \times 1\frac{1}{2}$, or 7 to foot,	1 60	3 00	4 40	13 50
$5\frac{1}{2} \times 4\frac{1}{4} \times 1\frac{1}{2}$, or 7 to foot,	1 75	3 50	10 00	16 00
$5 \times 5 \times 1\frac{1}{2}$,	1 75	3 50	10 00	16 00
$5\frac{1}{2} \times 5\frac{1}{2} \times 1\frac{1}{2}$,	1 75	3 50	10 00	16 00
$5 \times 6 \times 1\frac{1}{2}$,	1 75	3 50	10 00	16 00
$5\frac{1}{2} \times 6\frac{1}{2} \times 1\frac{1}{2}$, $1\frac{1}{4}$ or $1\frac{3}{4}$	2 00	3 75	10 50	17 00

Prices of Sections of Other Dimensions and How to Order Them.

Prices of sections that we have to make to order will be, for 500, \$2.50; 1000, \$4.00; 2000, \$7.00; 3000, \$10.

When sections are not square, always write the length of top or bottom, outside measure first, and side next. Or, indicate how the section stands on the hive, thus: ☐ or thus: ☐ and give the width you want. You ☐ will thereby avoid confusion and mistakes. If you do not do this, or send sample, or indicate in some way which is top and which side, we will not be responsible for mistakes or delays. Tell, also, which style you want, as indicated above, and what width. If you fail to give these particulars we will send style 2, $1\frac{1}{2}$ inches wide. These can be used either way. No order taken for less than 500 of any size not kept in stock.

Dovetailed and Nailed Sections.

We will make sections dovetailed all around, or material for nailed sections, for the same price as the one-piece section with 50c per 1000 added.

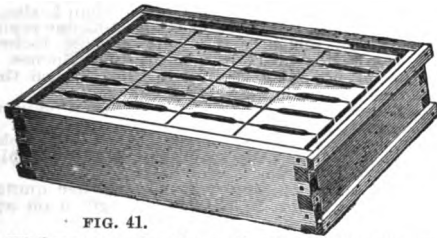
Dovetailed T Super.

FIG. 41.

While we consider the section-holder arrangement for holding sections on the hive superior to any other, there are those who have used the T super so long, and to the exclusion of all others, that they are not easily persuaded to use any thing else. The regular dovetailed super is one inch too long, and $\frac{1}{4}$ inch too deep, to hold four rows of $\frac{1}{4}$ -inch sections. It is just right for sections $\frac{1}{4}$ inches square; but most bee-keepers prefer to use the regular size, $\frac{1}{4}$ square. We have, therefore, made a dovetailed T super $\frac{1}{4}$ inches deep and $17\frac{1}{4}$ long inside, with cleats on the ends, as shown above, so that it may be used on the regular Dovetailed hive or the dovetailed chaff hive. This arrangement is used by Dr. C. C. Miller and others. Any width of section may be used by varying the size of wedge back of the follower. When no width is mentioned in orders for complete supers, we send the regular width of sections, $1\frac{1}{2}$ inch. If you order the regular dovetailed super with $\frac{1}{4}$ -inch sections, we will send 7-to-foot without follower and wedge, unless otherwise specified.

Price List of Dovetailed T Supers.

Name and Description.	Price each, nailed.	In flat.	Weight of 10
Dov. T supers, with tins only, 25c	10	\$1 50	40 lbs.
Dov. T supers, with tins, follower, and wedge.....	30c	2 00	50 lbs.
Dov. T super, complete.....	50c	3 50	70 lbs.

Regular dovetailed super with T tins for $\frac{1}{4}$ -inch sections, at same prices. Slotted or pattern separators can not be used in T supers, and $\frac{3}{4}$ -inch sawed separators are used. Sticks to place across the super above separators, to occupy same space as T tin below, included with each.

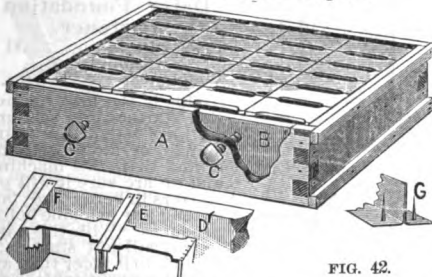
Hilton Dovetailed T Super.

FIG. 42.

Geo. E. Hilton and others use and recommend supers with T tins nailed fast. He also uses thumb screws for compression instead of the simple wedge. The above cut shows this style of super which we are prepared to furnish at the same price as the Dov. T super.

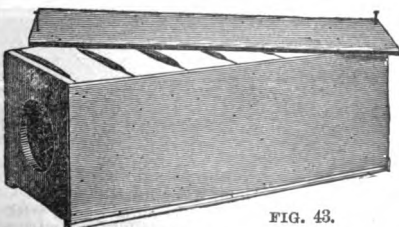
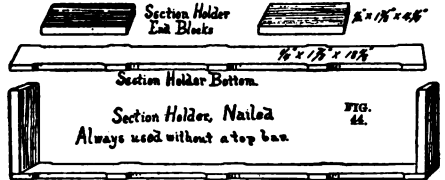
D. Section Case.

FIG. 43.

Price of D. section-case complete with sections and starters, 12c each; 10 for \$1.00.

In flat, no sections or starters, 5c each; 10 for 40c. This case is designed to take the place of the old farmer's honey-box, and will be appreciated by many for various reasons. It is of such a size that it can be used on almost any hive, and if you choose it can be sold entire just as filled by the bees. Further description under hives, on previous pages.

Section-Holders.

Section-holders $1\frac{1}{2}$ in. wide, \$1.20 per 100; wt., 35 lbs. Section-holder bottoms, 1, 60c per 100; wt., 15 lbs. These section-holder bottoms are what some dealers list by the name of *pattern-slats*. We have them 17 or $18\frac{1}{2}$ inches long, and make other sizes to order. The above cut shows a section-holder before and after the bottom is nailed to the end-blocks. The bottoms are $\frac{1}{4}$ inch thick, $1\frac{1}{2}$ inches wide, with insets corresponding to those in the sections. The ends are $\frac{1}{2} \times 1\frac{1}{2} \times 4\frac{1}{2}$. They have no top-bars. Other widths can be made to order as wanted, at 50c extra on the lot, for setting our machinery.

Wood Separators.

FIG. 45.

Separators are used to prevent the bees from building the honey from one section into another, so that, when you pack the honey for market, it will not be protruding from one side of the section to be bruised or mashed. Wood separators are preferred, to tin where they can be used loose, because cheaper, and the bees can use them as ladders to climb on, and they will not "chill their feet." Sawed wood separators will answer nicely in place of tin where they have to be nailed. As we now make them, sawed about $\frac{1}{4}$ thick, they are superior to any other kind, and much cheaper than tin. Heavy manilla paper, paraffine coated, is recommended for separators. If a heated iron is laid on the paper, the wax coating will make it adhere to the wood.

Price List of Wood Separators.

Slotted sawed wood separators, $\frac{1}{4} \times 18$, for Dov. supers, 60c per 100; 500, \$2.50; weight of 100, 7 lbs. Sawed wood separators, $\frac{3}{4}$ in. wide and 17, $17\frac{1}{4}$, or 18 in. long, 40c per 100; 500, \$1.80; weight of 100, 5 lbs. Wax paper separators, 4×18 , 50c per 100, 500, \$2.25. In ordering separators, be sure to give the length, or tell what they are to be used for. If you don't, we will not be responsible for mistakes.

Hubbard Section-Press. Pat.

Price \$2.50. Wt., 25 lbs. This is the best machine for putting together the one-piece section that we have tried, and we have seen most of them. The ends of the section are forced together by means of a toggle joint, a principle by which great power can be applied. With it a child can fold about 500 one-piece sections per hour. Place a pile of sections in your lap, pick up one, fold it, and then throw the section into a large basket.



FIG. 46.

Comb Foundation.

All our comb foundation is made from pure bright yellow beeswax. The lightest-colored is selected for thin foundation for sections, and the rest is made into comb foundation for the brood-chamber.

The New Weed Patented Process.

By means of a newly invented machine for sheeting wax for making into comb foundation, all our foundation of regular sizes is of a superior quality. The melted wax is gradually cooled and formed into sheets in a semi-molten condition. The foundation made from these sheets is more transparent, and tougher. It is not so brittle when cold, and consequently is not so liable to injury in shipping and handling. It is in every way superior to foundation made from sheets dipped in the old way. We control the process for the U. S. By means of this machine we can more readily work up your own wax. We will work up your wax into foundation in quantities of not less than 25 lbs. at the following rates, you paying transportation charges both ways. Special prices quoted for working large lots of 200 lbs. or over.

Heavy and medium brood,	12 cts. per lb.
Light brood,	15 "
Thin surplus,	20 "
Extra thin,	25 "

To meet the wants of all, we make comb foundation in five different weights, as follows:

Heavy Brood,	from 4 to 5 square feet per lb.
Medium Brood,	from 5 to 6 square feet per lb.
Light Brood,	from 7 to 8 square feet per lb.
Thin Surplus,	about 10 square feet per lb.
Extra Thin Surplus,	from 11 to 12 square ft. per lb.

Those who have used foundation, and know what they want, we do not need to advise; but to beginners, and those not so familiar with it its use, it will not be amiss to say a word in regard to

The Use of Comb Foundation.

There is little question but that it pays to use foundation in full sheets in the brood-frames and sections, especially the latter. If you think you can not afford so much, you should at least have a strip for a starter. It will help much more than it costs, in getting straight even combs. You can use a starter any width from one inch up.

What Weights to Select.

Heavy, medium, and light brood foundation are used only in brood-frames. Thin and extra thin, only in surplus boxes.

For frames without wire, and those deeper than L. frame, heavy or medium brood should be used. Never use light brood in full sheets without wire; and even with wire, medium brood is much more satisfactory. Light brood costs less per square foot, but is very liable to sag without wire, and to wrinkle when wire is used.

If you use only a starter in section boxes, thin foundation is best; if full starters are used, extra thin will be better, as it is not so perceptible in the honey when finished, and does not make what has been called "fishbone" in comb honey. It being so thin, some have had trouble with the bees tearing it down, and therefore they prefer to use thin.

For the person who is not sure what he wants, we advise medium brood for use in the brood-frames, and thin surplus for sections.

Table of Prices of Comb Foundation.

When you order, be sure to tell which weight you want, and give price.

Small samples of each kind will be mailed free. We guarantee foundation furnished fully equal to samples in every respect. Send for samples and compare with other makes, and see if ours is not fully equal if not superior to any other on the market.

NAME OF GRADE.	Price per lb., in lots not less than			
	Sq. ft. per lb.	1 lb	10	25 50
Heavy brood foundat'n.	4 to 5	47	46	45 44
Medium "	5 to 6	47	46	45 44
Light "	7 to 8	50	49	48 47
Thin surplus "	10	57	56	55 54
Ex. thin "	11 to 12	62	61	60 59

For 100 lbs. or over, write for wholesale prices.

Foundation packed for mailing requires 25 cts. per lb. postage. Not less than 1 lb. of brood foundation, L. size, can be packed safely for mailing, or less than 3 lbs. of larger sizes. Brood foundation is made in one regular size, 7 $\frac{1}{2}$ x16 $\frac{1}{2}$, which is just

right for the L. frame, wired or unwired. Other sizes made to order, up to 12x20 inches.

We do not furnish light brood larger than L. size.

Thin and extra thin surplus is in sheets one regular width, 3 $\frac{1}{2}$ inches, and 15 $\frac{1}{2}$, 16 $\frac{1}{2}$, or 18 $\frac{1}{2}$ inches long. We can furnish other widths up to 5 inches.

When no size is mentioned we always send the regular sizes mentioned above.

For less than 5 lbs. of any other size than regular, add 5c per lb. for extra trouble in trimming.

Order in regular-sized packages as far as possible, of 5, 10, and 25 lbs. Less than 5 lbs. is tied in this sliced wood and paper.

We pay market price for BEESWAX. See quotations, twice a month in *Gleanings*, or given on application.

Parker's Foundation-Fastener.

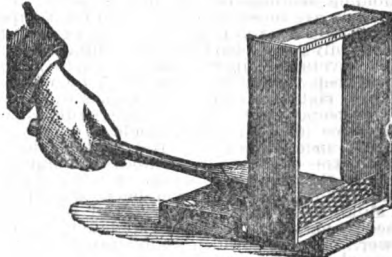
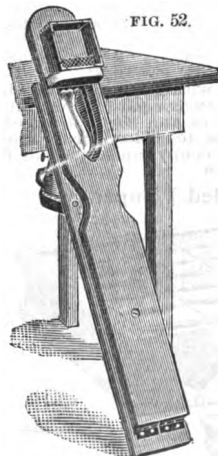


FIG. 51.

Price for 1-lb. sections, 25c; by mail, 15c extra.
odd sizes, 35c; " 20c "

Directions for Using.—Fasten machine to a bench or table; put a little honey on point of lever where it touches the foundation; slide box under lever, against stop; put foundation under $\frac{1}{4}$ inch; raise back end of lever, at same time turning the piece of foundation up against end of lever; slide lever off the foundation, which movement fastens it firmly to the box. With a little practice the machine can be made to work very satisfactorily.

FIG. 52.



Daisy Foundation Fastener.

Price with lamp.....\$1 00
" without lamp..... 70
Weight " " 5 lbs.

This is the best for putting starters into sections. Nothing could be more simple, or more easily operated than this machine; and we are sure it will put starters in better and faster than any machine before produced. With this a boy or girl will put starters in

about 500 sections per hour, and do it nicer than any of the presser machines we formerly sold. Complete directions accompany each machine.

Spur Wire-Imbedder.

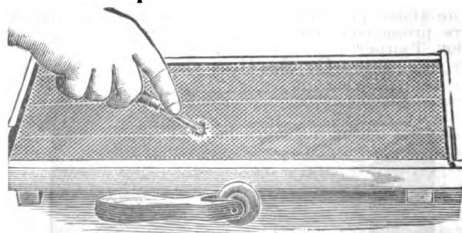


FIG. 53.

Price 15 cents; by mail, 18 cents.

This is a little tool like a tracing-wheel, with the teeth set in such a way as to straddle the wire while it is in the act of imbedding. It is the best tool we have ever tried for the purpose.

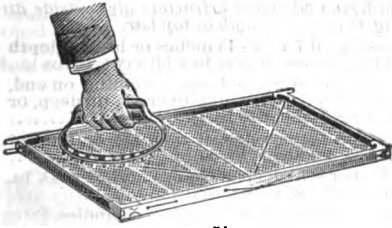
Easterday's Wire-Imbedder.

FIG. 54.

Price 15 cts.; by mail, 21 cts.

This is the old-style rocking device made of tin. We do not consider it as good as the Spur, but can furnish it to those who prefer it.

Electrical Wire-Imbedding Outfit.

Price of outfit complete, \$2.50.

If you have very much foundation to put on wired frames, it will pay you to use this outfit. The saving in time, and the nicety of the work will more than pay the extra cost. It includes a battery of three cells, chemicals, and all the necessary tools. The batteries are strong enough to heat the wire from end to end, so that it sinks into the foundation by simply pressing lightly on the sheet on the reverse side with the Blood's roller, or even with the hand. Directions for use accompany each outfit.

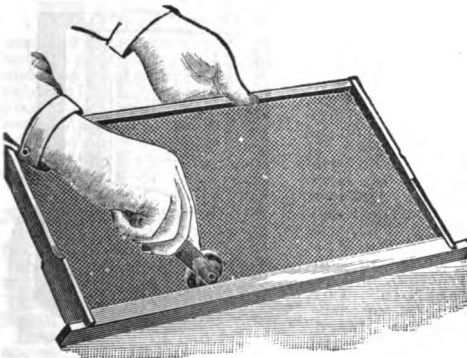
Daisy Foundation-Roller.

FIG. 55.

Price 15 cts.; by mail, 18 cts.

This is Hambaugh's roller, shown in Dadant's Langstroth Revised, adapted so as to fasten foundation to our molded top-bars. All that is necessary is, to lay the sheet on the wires, dip the roller into water to prevent the wax from sticking, and pass it along the edge of the foundation. The first time over, the pressure should be light and increased until the edge is firmly pressed into the wood. We have two styles—one for our molded top-bar and one for the old-style flat top-bars, either of which does the work perfectly. In your order, be sure to specify which style of top-bar you wish to use it on. We send the one for molded top-bar unless you do.

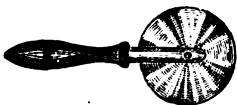
Carlin's Foundation-cutter.

FIG. 56.

Price, with tin wheel, 15 cts.; by mail 18 cts.

Price with steel wheel, 60 cts.; by mail, 65 cts.

Although these are very convenient for cutting a great number of small pieces, we prefer for larger work, to cut a board the size wanted, and lay it on a pile of a half-dozen sheets or more, then with a *very sharp*, round-pointed butcher-knife, cut with repeated strokes through the whole at once, clear round the board. If the wax is neither too cold nor too hot, and you keep your tool lubricated, you can, with practice, do it rapidly and nicely.

Round-pointed butcher-knife, 15c; by mail, 20c.

Comb Foundation Machines.

We make four sizes of these machines as in price list below. The 6-inch mills are made especially for thin and extra thin foundation, with hexagonal cell, unless ordered otherwise.

The 10-inch mills we send out, when no specification is given in regard to the style of cell, will make brood foundation from 6 to 8 sq. ft. per lb.; or, if wax is dipped thin enough, you can make fair surplus foundation on the same mill, about 9 to 10 sq. ft. per lb.; 12 and 14 inch machines are made with cell for medium brood foundation, about 5 to 6 sq. ft. per lb., unless otherwise specified.

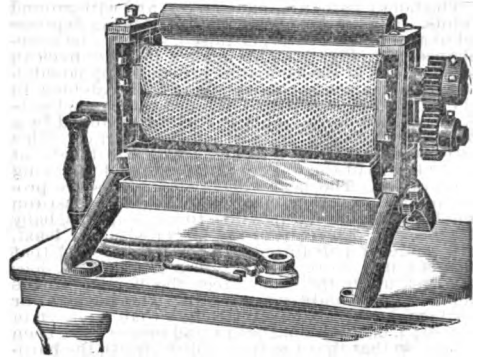


FIG. 57—10-inch Foundation-Machine.

The style of cell we prefer, and the one we furnish on all 10, 12, and 14 inch mills sent out on all orders except those from Europe, where no preference is stated, is what we call the round cell. This makes

strong comb and comes from the rolls more readily, I think, than the hexagonal cell. The latter, being the more natural form of the cell, is preferred by some. We will, therefore, furnish them either way, as you order. But if nothing is said specifying the style of cell, we send the round. We will mail free a sample package of foundation, showing the different styles and weight. We can make the cell deep or shallow as desired; but remember, the deeper the cell the more wax it takes for a square foot of comb, and the more difficult to take from the rolls. Mills to make extra deep cells turning out sheets of foundation about $\frac{1}{4}$ in. thick, will be made to order when wanted.

It is not practical to roll foundation much wider than 6 inches on a 6-inch mill, or 9 inches on a 10-in. mill, etc. The closer you work to the end of the roll, the more particular you have to be.

We especially recommend the 10-inch mill for the Langstroth frame.

Price List.

14-in. mill (boxed 115 lbs.),	\$42.00;	Dipping-tank,	\$3.00
12-in. mill " 95 "	36.00	" "	2.50
10-in. mill " 85 "	24.00	" "	2.00
6-in. mill " 45 "	18.00	" "	2.00

The above prices are for cells five to the inch. We are prepared to furnish mills with $\frac{1}{2}$ cells to the inch at 10 per cent extra, but can not recommend them. The machines are all ready for use, and full instructions will be sent to each purchaser.

We have sold our machines not only all over the U. S., but in every civilized country on the globe, and we can give references in regard to them from all these countries. We sell over 200 machines annually.

We will furnish dipping-plates, for above machines made from clear straight-grained pine, of any width, for $2\frac{1}{2}$ cents per inch in width. Or if you choose you can make your own dipping-boards, as we always send along with the mills directions for making them. For the 10-inch mill a 9-inch board is used. For L. frame you trim after rolling. For 1-lb. sections, trim to $3\frac{1}{2}$ inches wide before rolling.

Unless you have to use or supply two or three hundred pounds of foundation each season, and have or can get the wax at a reasonable price, we do not advise you to purchase a machine. Many who use 1000 lbs. or more prefer to buy the foundation already made.

Extractors.

During the last few years we have made great improvements in our extractors. Sample machines of each class have been submitted to large honey-producers for their criticisms and suggestions. All the suggested improvements were carefully considered, and, so far as they were feasible from a mechanical point of view, were adopted. The material and workmanship are the very best that money, skilled mechanics, and machinery, can turn out, so that now we confidently believe we are offering to the public the very best machines, both in point of practical construction, material, and workmanship that can be produced.

The honey-gates are made larger, and with ground joints. The bottom of can, instead of being depressed to a common center, is raised, so as to be cone-shaped, as in Fig. 60. This makes it easier to clean the can, and at the same time prevents any possibility of the frames or comb-pockets from catching in the honey. The tops are stiffened with a good substantial iron hoop. This is further stiffened by a castiron cross-arm supporting the gearing. This latter is of the beveled form, leaving the handle at the side, out of the way for putting in and removing the frames. The gear-wheels themselves are protected by—or, rather, covered with—a thin castiron shield, rendering it impossible to catch aprons, baby fingers, etc. The cans of the larger sizes, at least, are made of galvanized iron; and it is found that this is much more durable, does not tarnish, does not rust, nor in the least affect the honey. In the smallest sizes only we use tin. The baskets, or pockets, are braced much stronger than is shown in Fig. 61; i. e., additional stays and braces have been put in, so that they are fully able to resist the hardest service. So much applies to all extractors we make.



FIG. 58.—Showing the Relative Sizes.

The above cut will show, better than any thing we can say, the relative sizes of the three machines we build for Langstroth frames. They weigh respectively 25, 45, and 117 lbs., uncased; and the diameter of the cans are, respectively, 17, 20, and 23 inches.

The Novice Extractor.



FIG. 59.

The Novice will handle the product of 60 or 75 colonies in a good season. For a larger number, or in case where the combs are not wired, we would recommend by all means the Cowan reversible. It costs but a trifle more, but will save a large difference in time in handling the combs.

This is the old original machine, with several added improvements. Until the two-frame Cowan came upon the market, it was the best machine made. For those who want the smallest and lightest machine, as well as one moderate in price, this will fill the bill. It is a non-reversible two-frame machine; that is, the frames must be placed clear out of the extractor, reversed in the air, and put back into the basket the other side to.

Price List of Novice Extractors.

In ordering odd-sized extractors give outside dimensions of frame and length of top-bar.

No. 4.—For all frames 13 inches or less in depth and 13½ inches or less in width (wt. 60 lbs.)	87 00
No. 5.—For L. or Simp. frame standing on end, or any other frame not over 9¼ in. deep, or 18¼ long, top-bar 20 in. (wt. 45 lbs.)	7 00
No. 7.—For frames deeper than the L., but not over 11½ in. deep (wt. 60 lbs.)	8 00
No. 10.—For still deeper frames not over 13½ in. deep, or 18¼ long (wt. 60 lbs.)	8 00
Any above numbers with milk-can handles, 25c extra	
“ “ “ “ 60 lbs. space below, 50c	
“ “ “ “ 100 “ 81.00	
“ “ “ “ made for four frames 5.00	

The weights given are for machines well crated to go by freight. We can crate 10 lbs. lighter for express. Dimensions of frames given are outside measure. To avoid mistakes, always give the size of your frame outside measure; also the length of top-bar. Where no size or number is given, nor any thing as a guide, we will send the machine for L. frame, as that is the American standard. This applies also to Cowan extractors.

The Cowan Rapid Reversible Extractor.

Ever since the introduction of this most excellent machine, some four or five years ago, bee-keepers have been quick to appreciate its advantages, not only over the non-reversible type of machines, but over any other reversible ever put on the market before. It will handle the product of large apiaries, and yet is comparatively small and light, as seen in Fig. 60; it is simple in construction, and reversible. The pockets, or baskets, are hinged, gate fashion, and swing inside of a pair of eight-sided hoops, as it were. When the combs are extracted on one side, the machine is stopped, the left hand catches hold of the basket, and swings it around the other side to, door fashion. A slight turning of the handle brings the other basket around, to be reversed in the same manner. While the operation is not done automatically, it is positive and more rapid than in the so-called automatic machines. The reversing may also be effected without stopping the machine—the reel is simply slowed up. The outer edge of one basket is caught by the hand, and as the reel continues to revolve the basket is thrown the other side to. The other basket is caught and reversed in the same manner. In other words, the hand holds the outer edge of the basket stationary, while the revolving reel throws the pocket around. The motion is speeded up again; and the result is, that the combs are extracted on both sides without once stopping the machine. After the knack is acquired, the operation can be performed very quickly and easily.

We should like to print a few testimonials we have received; but the number is so large that we are obliged to leave them out here. It is sufficient to say that the Cowan is endorsed by all the large extracted-honey men who have seen or used it. It needs only to be tried, to appreciate its superiority.

Four and Six Frame Cowan Extractors.

These differ from the two-frame Cowans in that a center-shaft runs through the reel. This is necessary in consequence of the size of the extractor. The pockets and hinges are the same. Although these four and six frame machines are not automatic they can be reversed in the same time, and that too, without stopping the extractor. While the machine

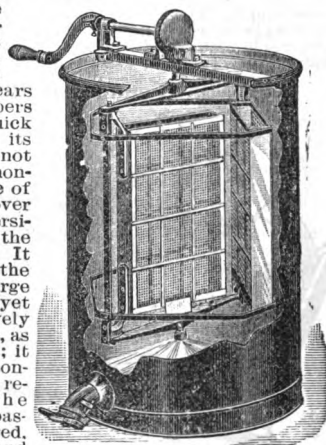


FIG. 60.

is in motion, the left hand catches one of the baskets, retards its outer edge enough so that the revolution of the reel turns the basket, or leaf, the otherside to; and as all the baskets are geared together by sprocket wheel and chain, as shown in Fig. 35, they are all reversed at once, the motion being slowed up enough to permit of this. It is an advantage to

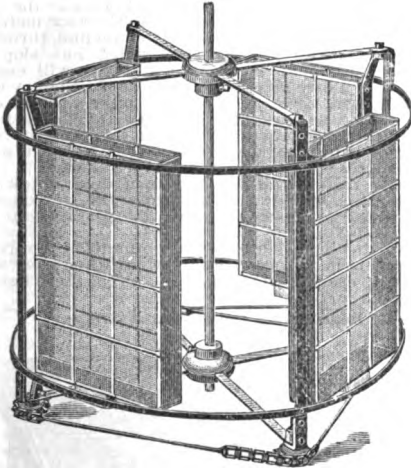


FIG. 61.—Inside View Only.

turn the crank one way. The automatic reversing devices in the reversal of motion strain the gearing, and the mechanism is so complicated that something is liable to get out of order. In the extractors above, every thing is *substantial*; the pockets are well braced; in fact, it is as thoroughly and well built as the two-frame Cowan. If there is a large amount of extracting to be done we recommend the 6-frame machine

Price List of Cowan Extractors.

No. 15.—2-frame Cowan for L. frames; diameter of can, 20 inches (weight 70 lbs.).....	\$10 00
No. 17.—2-frame Cowan, for frames not over 11 inches deep, 22 inch. diameter (wt. 90 lbs.)....	11 00
No. 18.—2-frame Cowan, for frames not over 12 in. deep, 24 in. diameter (wt. 120 lbs.).....	12 00
No. 20.—2-frame Cowan, for frames requiring larger than 24-in. can.....	14 00
No. 25.—4-frame Cowan for L. frames, 28 in. in diameter (wt. 150 lbs.).....	20 00
No. 30.—6-frame Cowan for L. frames, 31 inch diameter (wt. 180 lbs.).....	26 00

Write for prices on 4 and 6 frame extractors for odd-sized frames

Bevel Extractor Gear is the form that is usually preferred by the large honey-producers. Those we make are covered with a light iron shield to protect the gear from dirt and to keep baby fingers out. One who does a large amount of extracting will find the working of the crank much more convenient than where it is set horizontally over the center of the can. This crank is out of the way in putting in and taking out the frames, and the whole gearing is strong, and the leverage is so great that the revolving baskets can be easily stopped or set going instantly. It is furnished on all our extractors.

Price List of Bevel Gears, etc.

Bevel gearing, including cross-arm, complete, for 17-inch Novice can (weight 6 lbs.).....	\$1 25
Bevel gearing for 20-inch can (wt. 11 lbs.).....	1 50
Bevel gearing for 22-inch can (wt. 13 lbs.).....	2 00
Bevel gearing for 24-inch can (wt. 15 lbs.).....	2 50
Bevel gearing for 28, 30, or 31 inch can (wt. 32 lbs.).....	5 00
Honey-gate for extractor, 1½-in. bore (post. 25c).....	60
Honey-gate for extractor, 2-in. bore (post. 35c).....	75
Honey-gate for extractor, 2½-in. bore (post. 50c).....	1 00
Galvanized wire cloth for extractors, per foot.. 10 ft., 70c; by mail, be per foot extra.	08
Honey-gate handles for old-style gate, either 1½ or 1¼ in. bore.....	20 each; by mail..... 35

Price list of parts of extractors, gears, and honey-gates, will be mailed on application. If any part

needs replacing, write for this list to order from, or give an accurate description of the part wanted with sketch of it if possible, and tell for what size and style extractor it is wanted'

Honey-knives.



FIG. 62.—The "Novice" Honey-knife.

This is by no means equal to the Bingham or Abbott for uncapping alone, but useful for other purposes, such as scraping propolis off bottom-boards, covers, etc., for transferring and cutting chunk honey generally. It has a thin blade with a keen edge, beautifully finished. The Quinby is the same knife with the point curved.

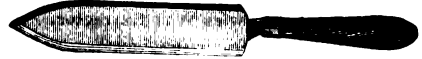


FIG. 63.—Abbott Uncapping-knife.

This style of knife is altogether the best for uncapping. It is now made of the best American steel, and an exact copy of Bingham's, except the holes. We send this knife when order does not specify which kind is wanted, because we consider it the best.



FIG. 64.—Bingham Uncapping-knife.

This is the original wide-blade uncapper. Its merits are too well known to be set forth here.

Our Ten-cent Honey-knife.

Originally made for a kitchen knife, and of great value for that purpose.

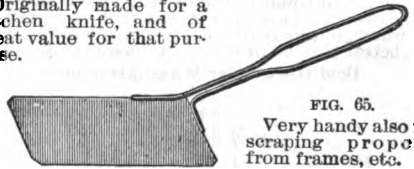


FIG. 65.
Very handy also for scraping propolis from frames, etc.

Price List of Honey-knives.

Novice honey-knife	75 cts. each; postage, 5 cts
Abbott	70 " " " 10 "
Bingham	70 " " " 10 "
Quinby	90 " " " 10 "
Muth	50 " " " 5 "
Ten-cent	10 " " " 5 "

Dadant Uncapping-can.



FIG. 66.

Price \$7.00; weight, packed for shipment, 66 lbs. This is made up of two 20-inch cans, one telescoping into the lower one a short distance. A wooden frame work runs across the top to stay the comb during the operation of uncapping. The bottom of the upper can has a wire-cloth bottom properly stayed to receive the cappings. The drippings—always the finest honey—run into the lower can, from which it can be drawn off through the ordinary honey-gate. Height as shown, 35 inches.

This machine is also invaluable for making sugar syrup by the percolator plan, for feeding.

Spread over the wire cloth a thickness of muslin; over this a cotton batting evenly distributed, about an inch thick, and

over the whole another thickness of muslin. Now pour in sugar and water in equal proportions by measure, and the next morning you can draw off syrup from the lower can just right for feeding, without any fussing to heat over the good wife's stove.

Wax-Extractors.

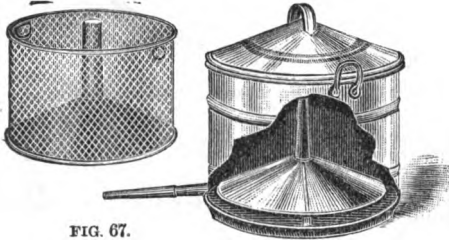


FIG. 67.

Root's Improved Swiss Wax-Extractor.

Price \$2.50. With steam-generator, \$3.20.

This is a very simple machine, for you have only to throw the refuse comb into the basket and set it inside the can. Now put on the cover, and place it over a pan or kettle of boiling water; the steam will ascend all around the basket, and the melted wax will run down and flow out of the tube. Under the end of this tube is kept a can to catch the wax. As fast as the comb sinks down, more can be put in, and so on. If you have no kettle that is 12 inches across the top inside, we can furnish a copper-bottomed steam-generator. Weight, 20 lbs.

Jones's Wax-Extractor.

Price complete, boiler and all, \$4.00. Weight, 25 lbs.

This is made on the same principle as the above, but is deeper, and there is a space for water below in the same can.

Our 35-Cent Wax-Extractor.

This is simply an 8-qt. dish-pan with a 20-cent all-metal sieve set in it. To use it, pour water in the pan, put your comb in the sieve, and set the whole in the oven. As fast as the wax melts and falls in the water, put more in the sieve; by mail, 35c extra. But better than all of these artificial-heat devices is

Doolittle's Solar Wax-Extractor.

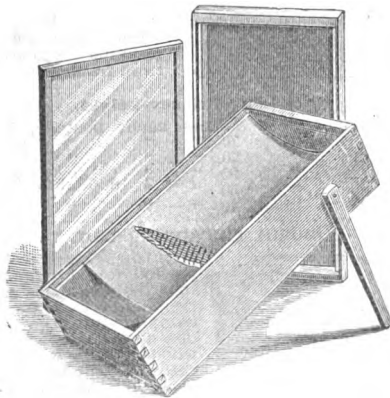


FIG. 68.—Price \$3.00. Weight, 30 lbs.

One of the indispensables nowadays of a well-regulated apiary is a solar wax-extractor. A good one will more than pay for itself in one season. Bits of wax and small chunks of comb honey, that *somehow* will accumulate while working with the bees, would ordinarily be thrown away; but if you own a solar extractor you will, on your way to and fro through the apiary, just drop them into it, "because it is so handy—right in the center of the apiary, working for nothing and boarding itself." Your wife will be pleased, for her stove and kitchen won't have to be soiled again. And then, too, wax melted by sun heat will bring a higher price, because the action of the sun is to *bleach* as well as melt it, and you will find it of a beautiful yellow color when cold. In the process of melting, the honey and wax will melt together, the former will harden into a cake, and the

latter will be found beneath. Such honey is impaired in color and flavor somewhat, but it is just as good for feeding to the bees. In fact, this method of extracting the honey from the wax was the only one used by the early California bee-keepers.

Directions.

Remove the cover and incline the box toward the sun, by the legs, as shown above. As long as the sun shines it is ready for business. As the wax melts it gradually runs down through the incline, through the wire screen, into the pan which has sloping sides. If the pan is greased, the wax will easily drop out—a nice merchantable cake if no honey was previously in the wax. To clean, make a paddle out of a shingle, with a square end. Toward night scrape out the dirt and leavings from the wax, and store it in a closed box, to be afterward treated by sulphuric acid, as described in the A B C (see page 6). Ordinarily, incline the box as shown, directly toward the south. It will not be necessary to point it toward the sun every hour or two. *Always keep the glass clean.*

To melt up old combs, we recommend first pulverizing them in cold freezing weather, when they will break up easily. In this way the wax is freed better from the cocoons.

Boardman's Solar Wax-Extractor.

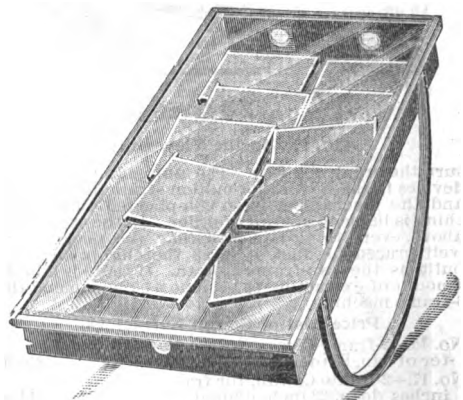


FIG. 69.

Price complete, with glass, \$6.00; weight, 110 lbs., without glass, \$3.50. Full directions with each one.

Where there is very much rendering to do, such as the melting-up of a lot of combs, we advise the use of a larger solar extractor. The one above illustrated takes a single sheet of double-strength glass, 30x60 inches, mounted in a removable sash, the edges of which overlap enough to shed water. The box is made of thoroughly seasoned matched pine, and the inside painted black to draw the heat. It is mounted on rockers, not only to make it portable, but to permit of its being tilted at any angle to the sun. This machine has been thoroughly tested by Mr. Boardman and ourselves, in melting up hundreds of old combs; and in any apiary where there is much wax refuse to be converted cheaply into wax, we recommend it in preference to any other. It may also be employed in evaporating down extracted honey. The ventilators in this case are opened at each end.

Globe Bee-Veil.



Five cross-bars are riveted in the center at the top. These bend down and button to studs on a neck-band. The bars are best light spring steel. The neck-band is hard spring brass. The netting is white, with face-piece of black to see through.

It is easily put together, and folds compactly in a case 1x6x7 inches—the whole weighing but 5 ounces. It can be worn over an ordinary hat; fits any head; does not obstruct the vision, and can be worn in bed without discomfort. It is a boon to any one whom flies bother, mosquitos bite, or bees sting.

By mail for \$1.00. Extra nets 50 cts. each.

Tent for Setting over a Hive.

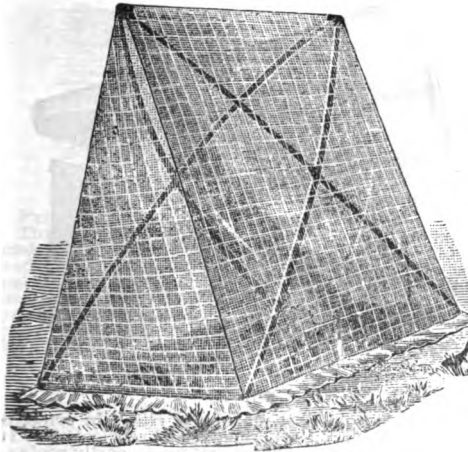


FIG. 70

Price \$1.50. Weight 6 lbs.

These are for the purpose of enabling us to go on with such work as introducing queens, transferring, etc., when robbers get so troublesome that we could not go on with work otherwise. After the middle of July we are obliged to use them almost constantly in our apiaries, and we could not possibly get along without them. They are made so as to fold up and put away, or for transportation, and weigh only about 6 lbs. all complete. The dimensions are 5 feet long, 5 feet wide, and 5 feet high.

Manum's Swarm-Catcher.

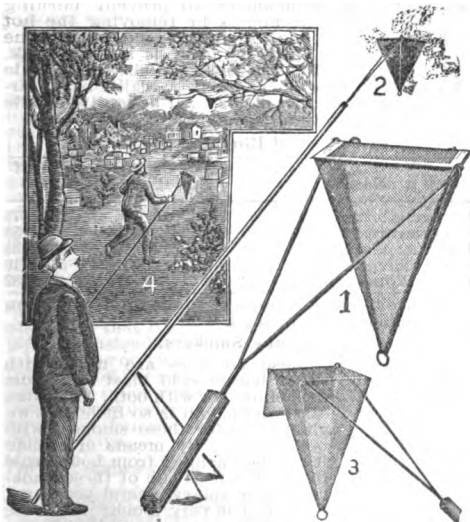


FIG. 71.

Price, with pole, \$1.00; without pole, 75c.

We have tested and examined many swarm-catchers, but have never found any thing that would begin to compare with the Manum. It is simply a wire-cloth basket with a lid to close it. To have a swarm whose queen is at large with the bees, open the basket as shown; push it up around the cluster of bees, far the latter off the limb, and close the lid by raking it against a lower limb so as to throw it over on top. Half or two-thirds of the bees will be in the basket. Adjust the legs of tripod so that the basket will be suspended in the air where the bees are flying the thickest. They, attracted by the bees inside, will cluster on the outside of the basket. While the bees are clustering, prepare the hive, if you have not already done

so. This done, go back to the catcher, which you will find has caught all the bees. Very gently lift up the two front legs of the tripod, fold them against the main bar, and then carry the whole to the empty hive; invert the basket, and dump. Close the hive, and the hiving is done. This device will reach a swarm 20 feet from the ground; it is light, and easily handled. After the bees are once in the basket they can not escape, and the prisoners will draw the others. The great feature of the device is that it will stand alone, and hold the basket where the bees are flying the thickest, without any one holding it, while the apiarist in the mean time is preparing a hive elsewhere.

Rubber Gloves.

While we sell large quantities of these, we can not consistently recommend them for handling bees, for we consider the naked hand better for working among the bees than any covering that can be devised for it. We can furnish a good article, well worth the money for other purposes, as follows:

Price List of Rubber Gloves.

Ladies' sizes, Nos. 6, 7, 8, and 9....\$1 35; postage, 5c
Gents' sizes, Nos. 10, 11, and 12....1 45; " 5c
Extra long driving, Nos. 13 and 14 1 70; " 10c

Mark size of hand on sheet of paper when ordering. If you order by number remember that in rubber you need 2 sizes larger than you wear in kid; i. e., if you wear No. 6 in kid you will need No. 8 rubber.

Veils to Protect the Face.

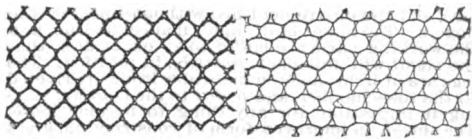


FIG. 72.

FIG. 73.

Our veils each contain 1½ yards of the best material for the purpose. They are well made with rubber cord in the top to fit around the hat, and the lower edge is bound with blue ribbon to prevent fraying. Three kinds of material are used. Figs. 72 and 73 show the silk and cotton tulle, or brussels as it is sometimes called. The silk tulle before the eyes is as near

invisible as any thing made, and it is also strong, and will wear well if used just before the face. Mosquito-bar is also used in cheap veils, but it does not wear well.

A veil made entirely of silk tulle weighs only a fraction of an ounce, can be put in the vest pocket, and is the coolest and easiest veil of all to wear.

The hat shown in Fig. 74 is a light cloth, with wire in outer edge of brim, and rubber cord in inner edge, making it adjustable to any size of head.

The higher-priced veils are, of course, the best, but we can suit the pocket-book of all. Our choice is in the order given.

Price List of Veils and Material.

No. 1 veil, made entirely of silk tulle.....80c
No. 2 veil, cotton tulle with silk tulle face.....50c
No. 3 veil, cotton tulle throughout.....40c
No. 4 veil, of mosquito-bar entirely.....25c
Bee-hat, flexible rim, fits any head.....25c
Silk tulle, 24 in. wide (8 yds. weigh 1 oz) per yd.....50c
Cotton tulle, 24 in. wide (post. 2c per yd.).....20c
Mosquito-bar, 66 in. wide, per piece of 8 yds.....50c
Silk tulle, for face of veil, 9x12.....10c

Veils and silk tulle sent postpaid at above prices. Postage on full piece mosquito-bar, 15c.

Smokers.

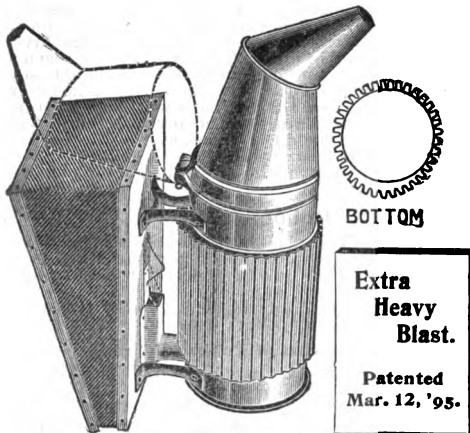


FIG. 75.—The Crane Smoker.

Price, $3\frac{3}{4}$ -inch barrel, \$1.50 each; 3 for \$3.50. Postage, 30c each extra.

This smoker has come rapidly into popular favor. It is of good capacity ($3\frac{3}{4}$ -inch barrel), strongly made, and handsomely finished. The top is hinged so that it can be thrown back (see dotted lines in cut), and the cup replenished without burning the fingers. The hinge is of light malleable iron, and the working parts are milled to an exact fit so that the snout will fall back *squarely*, in position. The legs are of light skeleton malleable iron; are riveted to the fuel-chamber, and *bolted* to the bellows, making it impossible for anything to become loose. The shield, an improved form of construction, gives ample protection to the hands from the heat of the stove. The check-valve arrangement, the invention of J. E. Crane, gives this smoker the distinction of having the strongest blast of any of the direct-draft smokers on the market—a feature that is invaluable in *forcing* bees out of supers. No matter how tightly the stove may be crammed with soft fuel, such as shavings and the like, it will deliver the same blast as when nearly empty of fuel.

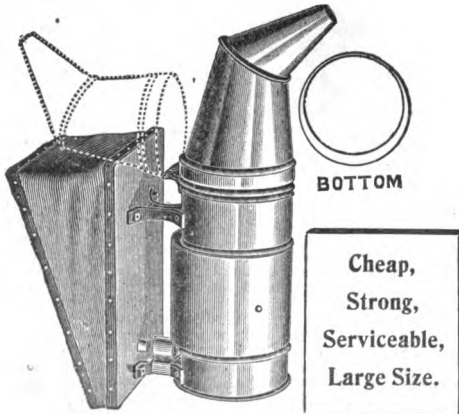


FIG. 76.—The Cornell Smoker.

Price \$5c, 3 for \$2.00, if sent by express or freight with other goods. Postage 25c each extra.

Just the thing for those who want a first-class smoker at a medium price. Size of cup, $3\frac{3}{4}$ inches; shield plain; curved nozzle, hinged so as to swing back for replenishing; legs of skeleton malleable iron, secured by bolts; in fact, we use in it the same cup and castings as in the Crane. The blast is the well-known Cornell principle; and, while it does not have quite the strength of the Crane, it is strong enough for all general purposes; and on account of its simpler form and the absence of working parts is preferred by some. Weight of smoker, only 23 ounces.

Clark's Cold-Blast Smoker.

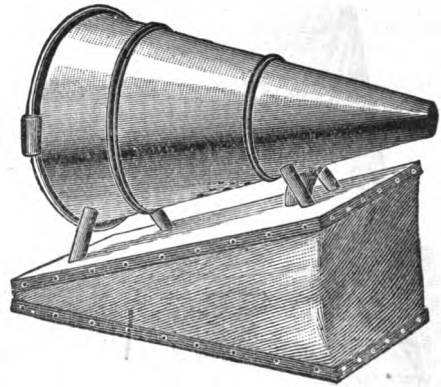


FIG. 77.

The Clark cold-blast smoker is cheap in price, is well made, of good size, reliable and serviceable. It is a breech-loader, and therefore is easily replenished by simply revolving the sliding-door. It is easily lighted with a match, and when once well going it will rarely go out.

Price List of Clark's Cold-blast Smoker.

Fifty cents each; 3 for \$1.20; 5 for \$2.00.

Postage 20 cts. each extra.

Five, in a basket, by express, weigh 7 lbs.

Prices of larger quantities on application.



FIG. 78.

Bingham Smoker.

This is strong, well made, does not clog up, and burns any fuel. It has recently been improved by the addition of a curved snout to prevent fire dropping, and a safety attachment to prevent burning the fingers in removing the hot cone for replenishing. It has one fault; its blast is a little weak. The three larger sizes have wide shields; the two smaller have narrow shields. All have wire handle to cone, and inverted bellows.

Price List of Bingham Smokers.

Name.	Size of barrel.	Postage.	Price of 1	3
Doctor.....	$3\frac{3}{4}$ in.	25	\$1 25	\$2 75
Conqueror.....	3 "	25	35	1 50
Large.....	$2\frac{1}{2}$ "	20	80	1 35
Plain.....	2 "	17	53	1 19
Little Wonder.....	2 "	12	48	82

Be sure to add the postage to the price when you order smokers sent by mail.

Quinby Smokers.

These smokers are made with either hot or cold blast tube from the bellows, or with both. The extra expense of both is so little that we greatly prefer these smokers with both tubes. By means of a slide it can be changed from hot to cold blast. We used one of these smokers in our apiary several years ago, and liked it very much. All these smokers have corrugated shield like the Crane, except the plain single-blast.



FIG. 79.

Price List of Quinby Smokers.

Name and Description.	Size of barrel.	Mail Each	not postpd.	1	3
Large Quinby double blast	$3\frac{3}{4}$ in.	\$1 75	\$1 50	\$3 00	
Large Quinby single-blast	$3\frac{3}{4}$ "	1 50	1 25	2 50	
Extra Quinby double-blast	$2\frac{1}{2}$ "	1 25	1 00	2 00	
Extra Quinby single-blast	$2\frac{1}{2}$ "	1 00	75	1 50	
Plain Quinby double-blast	2 "	1 00	75	1 50	
Plain Quinby single-blast	2 "	70	50	1 00	

Either of the single or double blast extra $2\frac{1}{2}$ inch furnished with hinge nozzle at 25c each, \$1.50 per dozen extra.

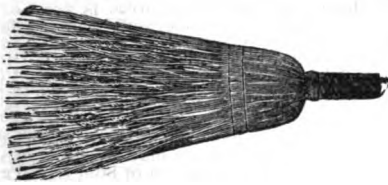
Bee-brushes.

FIG. 80.—Coggs' Bee-brush.

Price 15c; postpaid, 6c extra.

This is a sort of whisk-broom especially adapted and made for brushing bees. The strands are thinned out, and longer, so as to give a soft, pliable sweep to the combs. For the wholesale brushing of bees off combs in extracting, we do not hesitate to pronounce this the best. It is used and recommended by that extensive and practical honey-producer, W. L. Coggs, whose annual crop is several tons.

Davis Brush.

Price 15c each; postage 8c each extra.

We much prefer the Coggs brush, but we can furnish the Davis, either bent or straight handle.

Yucca Brush.

Price 5c each; 3 for 10; postage, 2c each extra.

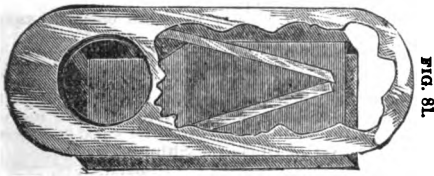
Porter Bee-escape.

FIG. 81

Price 20c each; \$2.25 per dozen, postpaid.

Board with escape, complete, 35c each.

Dealers supplied at wholesale prices, quoted on application.

No well-regulated apiary can be complete without at least a few bee-escapes. Any one who dislikes brushing or shaking bees off the combs, for extracting or for any purpose, will welcome this device; no stings are received in resentment of such treatment; the honey is secured free from black or even the taint of smoke; the cappings are not injured by the gnawings of bees; and robbers stand no show whatever. If there are any broken burr-combs they are cleaned up by the bees *inside* the hive, before the honey is removed. **Leading Bee-keepers use the Porter Escape**, and say that without a trial it is impossible to realize the amount of annoying, disagreeable work that it saves. Here is a sample:

Doolittle says: "The R. & E. C. Porter bee-escape clears the super of bees so quickly and perfectly and easily that it makes the taking-off of honey a pleasure instead of a dread, as in former years."

In putting on the escape, it is not necessary to lift the super off the hive; simply tilt up one end of the super, the other end resting on the hive; shove the escape-board under as far as you can; let the super down, and then slide both super and board squarely over the hive.

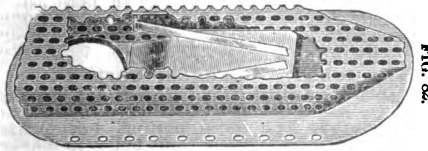
Porter Escapes for Honey-houses and Work-shops.

FIG. 82

Price Honey-house Escape, 35c each; \$4.00 per doz., postpaid.

The escape shown at the top of this column is designed to be used in the hive; but the one above is especially made for use on doors and windows of work-shops or extracting-rooms or other places where bees get in and it is desirable to get them out without the possibility of their returning. No extracting-room will be complete without one or more of them.

The Taylor Handy Comb-leveler.

This is a very handy and useful device for reducing the combs of unfinished sections after the honey is extracted to the same level, and at the same time taking off the soiled and thickened edges left by the bees at the top of the cells. Such combs, with their clean thin edges, are promptly accepted by the bees, are nicely filled out and capped, and increase very materially the next year's honey crop, so Mr. Taylor claims. The device is simply a square tin box mounted on a pan having a hole through the bottom. Through this hole the heat of a lamp passes and heats the plate so that, when the section is set over the box, as shown by the dotted lines, the comb, as it comes in contact with the heated surface, melts, and is reduced to a uniform level. Full directions accompany each leveler.

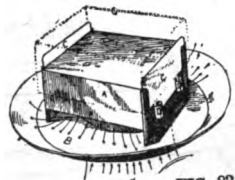


FIG. 83.

Price, \$1.00; postpaid, \$1.25

Thumb-screws of hard maple for side compression as in the Hilton super, screw 1½ inches long. Price \$1.25 per 100. Postage 40c per 100.

Taps for cutting thread for screw, \$1.25 each.

Quinby Corner-clamps. These are used on hives which are not otherwise fastened together at the corners. There are 12 pieces of castings in each set of corners. Price \$1.20 per 10 set. Postage 13 cts. per set.

Honey-Crates, Supers, etc.

We list these here, not because we recommend them, but because some have got used to and prefer them rather than make a change.

Price of Crates and Supers.	Nailed each	In flat, each 10	Wt. of 10.
Combined crate, no glass...	\$.20	\$.15	\$1.20 28 lbs
Combined crate, with sections...	.40	.30	2 50 52 lbs
Comb'd crate, with sections, starters, and wood separators	.50	.40	3 30 55 lbs
T super with T tins.....	.20	.14	1 10 22 lbs
T super with sections.....	.40	.30	2 40 47 lbs
T super with sections, starters, and wood separators...	.50	.40	3 20 50 lbs

We can furnish little pieces of wood to go crosswise of the T super, and across above the separators, to fill the space corresponding to the T tin below. Price of set (30) 5c; 100 for 10c.

Price List of T Tins per 100.

		Weight
T tins, 12, 13½, 14 in. long or under....	\$1 00	7 lbs.
T tins, 16 in. and under, to 14 in. long..	1 20	8 lbs.
T tins, over 16 in., up to 20 in.....	1 50	10 lbs.
Flat tins, 14 in. and under, ¾ wide.....	40	3 lbs.
Flat tins, 14 to 20 in. long, ¾ wide.....	60	5 lbs.

Staples for T-tin Rests.

Bent staples, about 400 to lb., 3 oz., 10c; 1 lb., 40c.
Straight staples (unbent), 3 oz., 5c; 1 lb., 20c.

Price of Wide Frames in Flat.

	Per 100	500	Wt. of 100
Wide frames for 8 1-lb. sections.....	1 80	7 50	50 lbs
Crosswise wide frames for 6 sections.	1 60	7 00	40 lbs
Half-depth " " for 4 sections.	1 60	7 00	40 lbs
3 or 4 box cases.....	1 40	6 00	30 lbs

Wide frames of other sizes, for different-sized sections, will be 50c for setting machinery, and any quantity not less than 100, in flat, at above prices.

Price list of tin separators	Inches long.	Price of 100	500	Wt. of 100
Tin sep's for 8 and 4 section wide frames, 3¼ wide ..	17½	\$1 50	\$7 00	25 lbs
Tin sep's for 6 and 3 section wide frames, 3¼ in. wide	13½	1 10	5 00	18 lbs
Tin sep's for sect'n-holders	17½	1 50	7 00	25 lbs
Tin separators for T supers	17½	1 50	7 00	25 lbs
Tin sep's for comb'd crate	17	1 50	7 00	25 lbs

In ordering separators, be sure to give the length, or tell what they are to be used for. If you don't, we will not be responsible for mistakes.

Table of Prices of 1-lb. Cartons.

Name or designation.	Price—	100	500	1000
1-lb. carton, plain, 1c each; 25 for 20c	\$	60	82 75	85 00
1-lb. carton, printed one side, one color, name and address.....		90	3 50	6 00
1-lb. carton, printed two or three colors, one side.....		1 00	3 75	6 50
1-lb. carton, printed one color on both sides, name and address.....		1 00	3 75	6 50
1-lb. carton, printed two or three colors, both sides.....		1 10	4 00	7 00

If sent by mail, postage will be 2c each; or in lots of 25 or more, 1c each. All the above have tape handles. Without tapes, 50c per 1000 less. The quality of the boxes is fair, being made of straw-board, plated outside. If more than 1000 are wanted, write for prices.

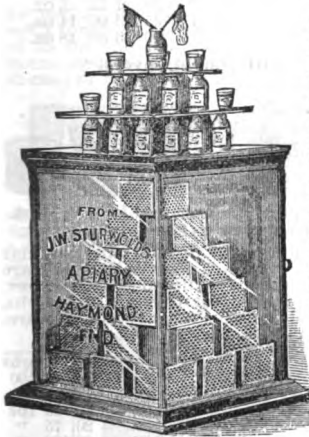
Sturwold's Show-case.

FIG. 87.

This case is 2½ feet high and 20 in. square, outside measure, top and bottom. The glass of which it is made is 16x26. The case is to be set up in any grocery, drug-store, or any other place of business where you wish your honey exhibited or sold. The frame is of chestnut, filled and varnished, and finished in natural grain. Price, plain, \$4.00; with your name and address, \$4.50. In flat, no glass or finish, \$2.00. As the glass is very apt to be broken in transit we will ship them with the glass boxed

separately at same price, if you prefer. As the cases are put together with glue before they are finished, we can not well ship in flat unless you are prepared to do this work.

Glass Packages for Honey.
Pouder's Square Jars.

Among small glass packages for extracted honey the square jars seem to be the cheapest and most popular. We handle Pouder's jars, which are made in three sizes, and put up 100 in a package. We will ship either from here or in



FIG. 88.



FIG. 89.



FIG. 90.

pkgs. of 100 from Indianapolis, Ind., at these prices:
5-oz. jar, 25c for 10; \$2.00 per 100; weight, 30 lbs.
8-oz. " 30c for 10; 2.60 per 100; " 45 "
1-lb. " 40c for 10; 3.40 per 100; " 75 "
Samples and prices of labels in our label catalog mailed on application.

Flath Square Jars.

The Muth square jar has been longer on the market, and is better known. These are made in four sizes, and packed, the 5 and 8 oz. in boxes of 1 gross each; the 1 and 2 lb. in boxes of ¼ gross each.

5-oz. Muth jars, 30c doz.; \$3.60 gross; weight, 55 lbs.	
8-oz. " " 40c " 4.00 " 65 "	
1-lb. " " 50c " 5.10 " 150 "	
2-lb. " " 65c " 6.60 " 200 "	

Above prices include corks.
Shipped in full-box lots, direct from Cincinnati, O. If wanted from here, add 25 cts. per box for freight.

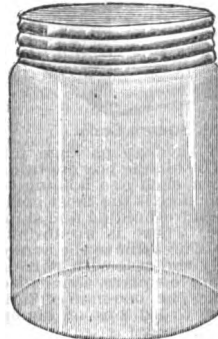
Glass Jars, Pails, and Tumblers.

FIG. 91.—No. 25 Jar.

The jam-jar also seals with a rubber ring and has a glass cover. The ball slides up the incline into a notch, and this seals the jar tight.

While this No. 25 jar is more expensive than a common tin tumbler, it is the nicest package we know of for extracted honey. It is clear flint glass, with glass top and tin screw rim and rubber ring to seal tight. We have them packed 2 doz. in a partitioned case ready to reship safely, filled with honey, without additional packing. We furnish them also packed 12 dozen in a barrel.



FIG. 92.—Old Oak Bucket.

FIG. 93.
Jam-jar.FIG. 94.
Screw-top Pail.
Nos. 775 to 778.FIG. 95.
Tumbler.
Nos. 788 and 789.

The three other styles shown are cheaper, and answer a good purpose. They have tin covers.

Table of Prices.

Number and Name.	Capacity.	Price		Barrels.
		10	No. Pr.	
No. 788, ¼-lb. tumbler.....	10 oz	25	250	\$5 50
No. 789, 1-lb. tumbler.....	16 oz	30	200	5 50
Nos. 788, 789, nested.....		50	200	9 60
No. 775, ¼-lb. glass pail.....	11 oz	38	250	7 30
No. 776, small lb. pail.....	14 oz	40	200	6 60
No. 777, large lb. pail.....	17 oz	50	150	6 00
No. 778, 1½-lb. glass pail.....	24 oz	70	100	6 00
¼-lb. Oak Bucket.....	10 oz	40	200	6 50
1-lb. Oak Bucket.....	16 oz	45	150	6 00
Large jam-jar.....	14 oz	70	144	8 00
No. 25, 1-lb. jar.....	16 oz	60	144	7 00

No. 25 jar, 2 doz. in case, at \$1.40; 6 cases, \$8.00. Barrels average about 135 lbs. each in weight. The capacity as given is what each will hold, well filled with honey of good consistency. The price of 10 is given in the second column; the third column gives the number in a barrel, and the fourth column the price of a barrel. Notice that it is much the most economical to buy them in barrel lots, if you can use so many. We can not break barrels at the barrel price.

Tin Packages for Honey.

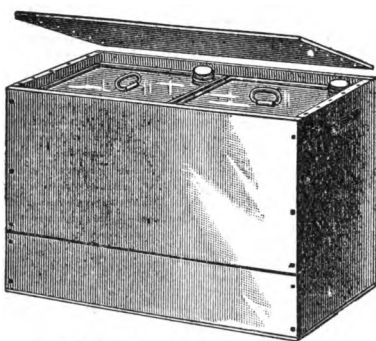


FIG. 96.—60-lb. 5-Gal. Square Cans.

The above cut shows our favorite package for shipping extracted honey. The oblong box contains two square tin cans as shown, each can holding 60 lbs. of honey. The whole package is the most complete thing we have ever seen for holding and shipping 120 lbs. of honey or over. There is no shrinkage and consequent leaking, no taint to the honey from wood as is so frequently the case with barrels and kegs. The cans, being made square, economize space and are easily boxed. The bee-men of California who produce from 20 to 100 tons of honey annually, use these cans exclusively.

Price List of Square Cans.

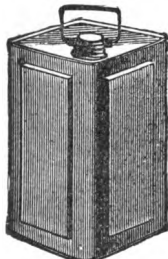
1 box of two cans, 75 | 1 can boxed singly, 45
10 | \$6 50 | 10 | \$4 00

All cans are now furnished with 1½ inch cap. Those shipped from Medina or Conneaut, O., have patent sealer in the cap. We will furnish them with a large 4-inch screw-cap as well as small one, at 5c extra each can. These are convenient for digging out candied honey.

We can ship these 60 and 12 lb. square cans from Chicago, Ill., St. Louis, Mo., or New Orleans, La., when desired, at same price.

Special prices on large quantities quoted on application.

12-Lb. (1-Gal.) Square Cans.



We can furnish 12-lb. square cans, same style as our regular 60-lb. cans, 10 in a box. These will be shipped direct from St. Louis, New Orleans, or from here, at the following prices:

One box of ten 12-lb. cans...\$ 1 80
10 boxes at \$1.20..... 12 00
100 cans in a crate without boxes..... 10 00

Jones' Honey-Pails with Screw Cap.

FIG. 97.

Postage.	Capacity in pounds.	Price of 1.	Price of 10.	Price of 100
5c	1	5c	48c	\$4 50
8	2	8	75	7 00
9	2½	8	78	7 50
10	3	9	88	8 50
13	5	10	95	9 20
18	6	10	98	9 50

These are the most convenient pails that we know of, that are suitable for shipping liquid honey in. The pail may be opened and closed any time, without breaking any cement or solder, and yet the caps screw down tight enough so the honey may be shipped safely. The caps are large enough so that, when the honey is candied solid (which is by far the best shape in which to ship it), the contents may be easily taken out with a spoon or a knife.

FIG. 98.



Screw-Cap Honey-Gate.

Price 15c each; postage, 8c.

We can furnish, when desired, a honey-gate, either 1½ or 1¼ inch, to fit the screw-caps to the foregoing cans as shown. This is a great convenience for retailing honey, as the stream can be stopped instantly.

FIG. 99.

When you order these gates separate from cans we can not guarantee a fit unless you send us the cap from the screw with the order.

Price List of Screw-Caps.

The following low tin screw-caps, paraffine-paper lined, are used on honey cans and pails. Other sizes can be furnished if sufficient quantity is taken.

Name and size.	one	10	100	Wt. of 10.
1½-inch screw-caps.....	3	20	\$1 75	5 oz.
3-inch screw-caps.....	4	35	3 00	14 oz.
3¼-inch screw-caps.....	5	40	3 50	18 oz.

Tin Pails with Raised Covers.



FIG. 100.—A NEST OF FIVE RAISED-COVER PAILS.

Above we give engravings of the most popular tin pails for honey. You will observe that they are made with the intention of nesting one in the other. This saves transportation, for they go by freight, when thus nested, at the same rate as stamped ware.

Price List of Raised-Cover Pails.

Size in Quarts.	lbs.	Price of				Weight of 100
		1	10	50	100	
¼ quart R. C. pail..	1½	48	38	1 80	\$ 3 40	55 lbs
1 " " " " " "	2½	5	48	2 25	4 20	75 "
2 " " " " " "	6	7	68	3 25	6 00	120 "
3 " " " " " "	9	10	90	4 00	7 80	130 "
4 " " " " " "	12	13	1 20	5 50	10 50	150 "
½ and 1 qt. nested..	9	85	3 90		7 50	100 "
¾, 1, and 2 qt. nested	16	1 50	7 00		13 50	170 "
¾ to 4 qt. nested....	35	3 20	15 00		30 00	320 "

Record's Tight-seal Cover Pail.



Fig. 102.

Fig. 101.

This is a very desirable pail for honey, though designed primarily for butter and lard. Fig 102 shows enlarged view of cover with lugs and rim, with groove into which lugs are sprung when cover is snapped down, sealing it tight. A wire lever attached to cover enables one to pry it loose readily, and it may be opened and closed as often as desired.

Number.	Lbs. capacity.	Price.			Wt. 100
		Lard-Honey.	1	10	100
No. 1 Seal cover pail,	1	1½	6	55	5 00 45
No. 2 " " "	2	3	7	65	6 00 60
No. 3 " " "	3	4½	8	75	7 00 70
No. 5 " " "	5	7½	10	90	8 00 90
No. 10 " " "	10	15	15	1 35	12 50 140
Impr'vd Dadant pail	5	7½	10	80	7 50

Sample Mailing-blocks.

Price each, 5c; br mail, 7c.

These are small wide-mouthed glass bottles, which hold ½ oz., with cork, put up in a mailing-block with top which screws on and is easily removed.

Signs.

We made a purchase of 4000 printed board signs, which enables us to offer them very low. Two of the signs are as follows:

Honey for Sale.**BEE-KEEPERS' SUPPLIES FOR SALE.**

Two others read:

No Hunting or Shooting Allowed on this Farm.

FOR RENT.

They are 6 in. by 2 ft., neatly printed in black on smooth white painted boards. Price 10 cts. each; or by mail, 25 cts. In quantities not prepaid we will sell 3 for 25 cts.; 6 for 40 cts.; 12 for 75 cts., or a bunch of 25 for \$1.25, all of one kind. We will furnish them, assorted kinds, as follows: 6 for 50 cts.; 12 for 90 cts.; 25 for \$1.50. We have, besides, the three old



FIG. 103.



FIG. 104.

signs, "Honey for Sale," "Bees and Queens for Sale," and "This Property for Sale," $4\frac{1}{2}$ x 18 in., all at 10 cts. each; 80 cts. for 10. The $4\frac{1}{2}$ x 18-inch signs are available at 6 cts. extra for postage.

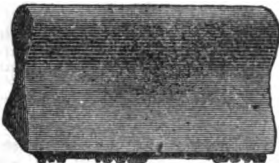
Rubber Stamps.

FIG. 105.

Many use rubber stamps for marking their shipping-cases, sections, letters, etc. Where you have a great many to mark they are cheaper and more quickly applied than labels. If you do not use printed stationery it is much better to have a rubber stamp for your name and address; then there is no chance of our reading it wrong, nor of your leaving off the name and address, as is very often done. We can furnish cheap name-stamps at 15 cts. for a single line; 25 cts. for two lines; 5 cts. extra for each additional line. Lines may be any thing up to 3 in. long. A small self-inking pad to go with it, 20 cts. Other stamps in proportion. Send for circular of rubber stamps. We make our own stamps, and can supply you promptly at best prices with any thing in the line of stamps, stencils, etc.

Honey-labels.

If only a good quality of honey were put on the market, and tastily labeled with the grade of honey, and the name and address of the producer, it would go far toward checking the impression that honey is adulterated. Some producers of comb honey mark each section with label or rubber stamp, giving name and address of producer. This creates a demand for their product, if it is A No. 1. A neat sample book of over 50 different styles of labels, with prices, mailed free on request.

Dextrine.

For gumming honey-labels and for pasting labels on wood, tin, etc.; will stick and dry instantly. This is the substance used on postage-stamps, and by express companies for putting on their labels, etc. Directions for use on each package.

Prices: 3 oz., 5c; $\frac{1}{2}$ lb., 10c; 1 lb., 15c; 2 lbs., 25c. If wanted by mail, add 1c per oz. for postage.

Price of brush, 5c; by mail, 7c.

Paraffine Wax.

Price 15c per lb.; 10 or 12 lb. cakes, 12c per lb.

For coating the inside of honey-packages, such as hogs and barrels, this is fully as good or better than beeswax, and much cheaper.

Scales.**Little Detective Scale.**

FIG. 106.

Single beam, no scoop, \$2.00; with tin scoop, \$2.50. Double beam, no scoop, \$3.00; with tin scoop, \$3.50. This little scale is made with steel bearings and a brass beam, and will weigh accurately any package from $\frac{1}{4}$ oz. to 25 lbs. It is intended to supply the great demand for a housekeeper's scale. It is hardly as rapid a weigher as the "Favorite," and does not, like it, take off the tare; but it weighs a smaller quantity, does it rather more accurately, under all circumstances, and costs 50c less. Every scale guaranteed perfect. Thousands are used by postmasters.

The Favorite Family Scale.

12-lb. Favorite, \$2.50

24-lb. Favorite, \$2.75.

Weight, boxed for shipment, about 5 lbs.

This is a beautifully finished, accurate instrument for weighing honey or any thing else; and it will weigh as close as a half-ounce without any trouble. The screw for adjusting the tares is right under the platform. Two sizes are furnished, weighing respectively 12 and 24 lbs. The 12-lb. is preferable when 12 lbs. is all you want to weigh, because there is more room for the figures and divisions.

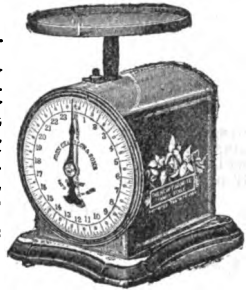


FIG. 107.

To Take off Tare with the Favorite.

Who has not felt what a nuisance it is, to be obliged to weigh the plate, pail, or dish, in which honey is wanted, and then to subtract this weight from the gross weight of the whole, without making mistakes. With the Favorite you have no subtracting to do, the scale itself does it. Suppose a customer brings a pitcher to fill. Set it on the scale, and the pointer sinks until it tells the weight of it. Pay no attention to this, but turn the screw until the pointer again stands at 0; now you are ready to let your honey run until the pointer tells the number of pounds he asked for.

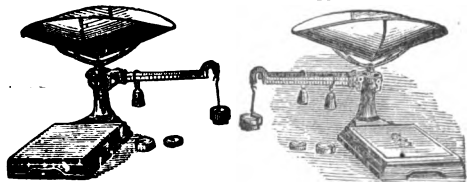
240-lb. Union Scales.

FIG. 108.—SINGLE-BEAM 244-LB. SCALE, \$3.25.

FIG. 109.—DOUBLE-BEAM 244-LB. SCALE, \$4.00.

This is a very convenient scale for family use. It will weigh from $\frac{1}{2}$ oz. to 30 lbs. in the scoop, and from $\frac{1}{4}$ lb. to 244 lbs. on the platform, which is 10 x 13 inches in size. The extra beam in the double-beam scale is used for taking off tare, and is quite convenient. We can recommend the make we handle to be reliable and accurate. Boxed for shipment they weigh 50 lbs. each.

800-lb. Victor Platform Scale.

Price only \$15.00.

We can furnish a platform scale on wheels, capacity 800 lbs., sold by Fairbanks, the leading scale-makers of the world. We ship direct from Cleveland, Ohio.

Cement-coated Wire Nails.

We are now using in almost all our work what are known as cement-coated nails. They are the ordinary wire nails with a thin coat of brown substance. The friction of the nail on the wood in driving softens this coating and makes it adhere to the wood while also adhering to the nail. This makes the nail hold better than anything heretofore known. If you have ever tried to draw a rusty nail you know something how these nails hold. If you wish to investigate them we will mail a sample package of various sizes for 5 cents to pay postage.

We have been using these nails for several years, but have not offered them for sale before because we have not until recently been able to get most of the smaller and special nails used in our work with this coating. We have prevailed on the factory who control this coating process by patent, to coat our fine nails down to $\frac{1}{8}$ inch, and also casing nails used in nailing hives. The four smallest sizes in the following list will be smooth nails.

These cement nails hold so much better that a smaller nail can be used, and have greater holding power. For instance, instead of $1\frac{1}{4}$ -inch smooth nails we now use 2d fine or 1-inch nails to nail up brood-frames and section-holders, and the work is stronger. On account of this greater holding power the patentees of the coating process adopted the plan of putting the same number of nails in a keg as the ordinary smooth nails will average, and make them a little scant in length and size so that a keg will be short in weight from 10 to 15 lbs., although having the same number of nails, and selling for the same price per keg. This plan made it difficult to fix a price by the pound, because kegs were not of uniform weight. Full-weight kegs of cement-coated nails cost more than the ordinary smooth nails.

The following table of prices is based on full-weight kegs. Should we fill your order for full kegs with nails put up by count instead of by weight, the price of these by the keg will be about 10 per cent less.

Price List of Fine Flat-head Wire Nails.

Cement-coated, except first four.

L'gth.	Wire Gauge.	No. in 1 lb.	Wt. of 5c pkg.	1 lb.	Price of 100 lbs.
$\frac{1}{4}$ in.	No. 21	17,500	2 oz.	.30	\$2.60
$\frac{3}{8}$ "	" 20	10,000	2 oz.	.25	1.80
$\frac{1}{2}$ "	" 20	7,500	2 oz.	.20	1.60
$\frac{3}{4}$ "	" 19	4,200	4 oz.	.16	1.40
$\frac{7}{8}$ "	" 18	2,700	4 oz.	.14	1.20
1 "	" 18	2,350	4 oz.	.13	1.10
$1\frac{1}{8}$ "	" 18	2,000	4 oz.	.12	1.00
$1\frac{1}{4}$ "	" 17	1,200	4 oz.	.11	1.00

Price List of Standard (D) Wire Nails.

All cement-coated.

Style.	Length.	Wire Gauge.	No. Nails in 1 lb.	Price of 100
2d fine.	1 in.	No. 17	1440	10 85
3d box.	$\frac{1}{4}$ "	" 15 $\frac{1}{2}$	550	9 75
5d "	$\frac{1}{2}$ "	" 14 $\frac{1}{2}$	368	8 70
6d "	$\frac{3}{4}$ "	" 13	250	8 70
7d "	2 "	" 13	238	8 70
8d "	$2\frac{1}{4}$ "	" 12	157	7 65
9d "	$2\frac{1}{2}$ "	" 12	130	7 65
10d "	3 "	" 11	107	7 65
4d casing.	$1\frac{1}{2}$ "	" 15	550	9 85
6d "	2 "	" 13	250	8 70
8d "	$2\frac{1}{4}$ "	" 12	157	7 65
3d common.	$1\frac{1}{4}$ "	" 15	615	9 75
4d "	$1\frac{1}{2}$ "	" 13	322	8 70
5d "	$1\frac{3}{4}$ "	" 12 $\frac{1}{2}$	254	8 70
6d "	2 "	" 12	240	7 65
7d "	$2\frac{1}{4}$ "	" 11 $\frac{1}{2}$	154	7 65
8d "	$2\frac{1}{2}$ "	" 10 $\frac{1}{2}$	116	7 60
10d "	3 "	" 9 $\frac{1}{2}$	74	7 60
16d "	$3\frac{1}{2}$ "	" 8	46	7 60
20d "	4 "	" 6	29	7 60

Price List of Tinned Tacks.

Name and size.	Weight of 5c	No. in 1 doz.	Pr. of 1 doz.
	5c	1 lb.	pkgs. lb.
2 oz. tinned Swedes tack,	$\frac{1}{4}$ in.	1 oz. 500	8000 35 45
	"	$\frac{1}{2}$ " 500	5300 40 35
6 " " "	"	$\frac{1}{2}$ " 300	1600 50 25
8 " " "	"	$\frac{1}{2}$ " 250	1000 55 20
$\frac{1}{2}$ -in. blued carpet tack oval top,	4 oz.	250	1000 40 15

The 2 and 3 oz. tacks are used to tack wire cloth on queen-cages. The 6 and 8 oz. are used for carpet tacks or other coarse work.



FIG. 110.



Double-pointed tacks, tinned, same size as cut. These are useful for a variety of purposes.

Four oz., 5c; 1 lb., 15c; 10 lbs., \$1.30.

Crate-staples.

These are $1\frac{1}{2}$ inches wide, with points $\frac{3}{4}$ in. long, and may be used to fasten the bottoms to hives in moving, or to mend a split in a box. Per lb., 15 cents.

Any of the above tacks or nails will be sent by mail at a cost of 18c per lb. for postage. If you want only a single ounce you must send 2c to pay postage. Postage on 2-oz. packages 15c. on 3-oz. packages, 4c. The staple sizes of nails are liable to an advance without notice.

Price List of Flat-head Steel Wood-screws.

We keep in stock the following sizes of screws at the prices annexed. The price is for pkg. of 1 gross.

Length	No	Price	Length	No	Price	Length	No	Price
$\frac{1}{8}$ "	8	10c	1 in.	5	15c	$1\frac{1}{4}$ in.	10	25c
$\frac{1}{4}$ "	6	12c	1 in.	6	17c	$1\frac{1}{2}$ in.	8	24c
$\frac{3}{8}$ "	4	16c	1 in.	7	18c	$1\frac{3}{4}$ in.	10	28c
$\frac{1}{2}$ "	4	10c	1 in.	8	20c	2 in.	10	30c
$\frac{5}{8}$ "	7	15c	1 in.	9	22c	2 in.	11	35c
$\frac{3}{4}$ "	8	17c	1 in.	10	24c	$2\frac{1}{4}$ in.	11	38c
$\frac{7}{8}$ "	6	16c	$1\frac{1}{4}$ in.	9	24c	$2\frac{1}{2}$ in.	12	46c

Will break packages and send 1 dozen or more for 20 per cent advance on the above prices.

Dry Goods.

There are various kinds of fabrics which are used more or less in bee-keeping. While many may be able to get these at their home stores to as good advantage, others may not be so fortunate. We therefore list here some of the things generally used.

Burlap.

This is used to make chaff cushions, and also for quilts to lay over the frames and Hill's device in winter.

Price per yard, 40 inches wide, 8c; 10 yds., 75c. By the piece of about 200 yards, 6c per yard. Weight, $1\frac{1}{2}$ oz. to the yard.

Chaff Cushions.

Burlap cushions, without chaff, 15c each.

Burlap cushions, with chaff, 25c each.

These cushions, unless otherwise specified, are made to fit the telescope cover on eight-frame Dove-tailed chaff hives. Made to order for other sized hives. Being quite flexible when loosely filled with chaff they will adapt themselves to hives varying quite a little from the size for which they are especially made.

Cheese-Cloth.

Price per yard, 5c; by the piece (about 50 yds.), 4c.

This is for making strainer bags for straining extracted honey. It may also be used folded to several thicknesses on percolator feeders, as explained elsewhere. It is also used on pan feeders as a ladder for the bees to walk on.

Cotton Cloth.

Price per yard, 6c; by the piece (about 50 yds.), 5c.

This is common unbleached sheeting, and is used to make covers for extractors and extracted-honey cans and barrels. It may also be used on percolator feeders folded to two or three thicknesses.

Duck.

This is 29 inches wide, 8 oz. to the yard.

Price per yard, 13c; by the piece, $11\frac{1}{4}$ c.

This is preferred by some for quilts over the frames. We use it for padding around chaff-packed division-boards.

Enamelled Cloth.

This is preferred by many to any thing else, for covering the frames, before the chaff cushions are put over the bees. I have seldom known the bees to bite through it, and the surface is so smooth and glossy, they put very little propolis on it.

Price per yard, 45 inches wide, 20c; 12 yards \$2.25.

If ordered by mail, 15c per yard extra for postage.

Feeding.

Bees are fed for two purposes: To stimulate brood-rearing, or to supply them with necessary stores for winter. For stimulating, a pint or half a pint of syrup daily, either at the entrance at night or inside of the hive should be given until the required amount of brood is reared. In preparing for winter, it is better to give the necessary stores all at one feed. We feed anywhere from 5 to 25 lbs. at a single feed toward night.

Simplicity Feeder.



FIG. 112.

This is to be filled with syrup made by mixing together granulated sugar and water in equal proportions by measure, and stirring or heating until thoroughly dissolved. This feeder may be placed at the entrance at night, over the brood-frames, by placing on top of the hive, or in the brood-nest itself, if a couple of frames are removed. A very nice way to stimulate brood-rearing in a nucleus in a full-sized hive is to set the feeder just outside of the division-board at night. Feeding should generally be done at night, so that the syrup can be all taken up and disposed of before morning.

The Gray Simplicity Feeder.

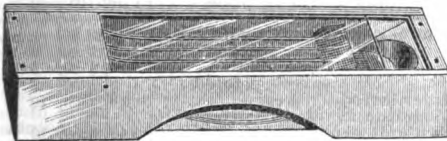


FIG. 113.

This, as the engraving shows, is simply a Simplicity feeder arranged with a glass slide. It is designed to be placed tight up against the entrance; and after filling, the glass is pushed back to cover up the entire feeder.

The Boardman Entrance Feeder.

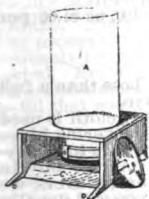


FIG. 113 1/2.

This is the best and handiest entrance feeder we know of. With it, feeding can be done at any time, secure from robber-bees, and without opening the hive. It is simply shoved up close to the entrance on one side—the spurs, or projections, extending far enough into said entrance to prevent robber-bees from without from passing the guards from within. It consists of a box with a hole in the top, to receive a 2-quart Mason glass jar inverted. The feed is given out to the bees on the atmospheric principle, through an opening in the screw top. Under this is soldered a cap with a rim, so that the syrup will run out no faster than the bees can take it. As the feeding goes on, a mere glance shows just how fast the bees are taking the syrup, and when the jars will need refilling.

As the Mason jar is a common article in every household, and glass jars are liable to breakage, most of our patrons will order only the box or lower part of the feeder with the special cap to fit the jars. Prices are made in the table in the next column with and without the jars. If you order the lower part alone specify whether you want them to fit one or two quart Mason jars.

The France Pepper-box Feeder.



FIG. 114.

The pepper-box feeder which we have sold for the past fifteen years has recently been given considerable prominence as the Hill feeder. It is simply a tin can with cover perforated full of fine holes. Fill the feeder and put on the cover, then invert it quickly and place it in the hive above or alongside the frames, giving the bees access to the perforations, which are now on the

under side. We furnish it in two sizes—pint and quart.

The Miller Feeder.

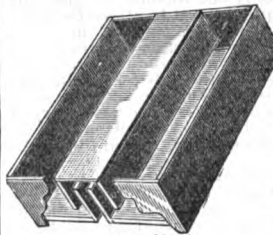


FIG. 115.

This is designed to be placed inside of a super, or in the upper story on top of the brood-frames. It has 2 compartments for syrup. The passageway to the bees is directly over the center of the brood-nest, at a point where there is the most warmth, and this makes it possible for bees to take down the syrup on cold freezing days, when the apiarist has been so negligent as to leave this operation for the last thing. Strips of wire cloth are nailed to bottom edges of the two outside boards forming bee-passages, so that it is impossible for bees to get into the syrup and get drowned, and yet they are enabled to take out the last drop. To feed, simply raise the cover; and if the colony needs 10 lbs of syrup fill one compartment about $\frac{1}{2}$ full. If it needs 20 lbs., fill both compartments nearly full. The amount of stores can be quite accurately gauged on the same plan, pro rata. This measures $11\frac{1}{2} \times 18 \times 4\frac{1}{2}$ inches outside, and will go inside of an eight-frame Dove-tail super or any of the hives we sell.

Complete directions for nailing these feeders and preparing them so they will not leak are sent with each lot in flat.

Syrup for Feeding.

We advise only the best granulated sugar, as it makes the safest winter food, and it has been found that it contains more real sweet for the money. Cheaper sugars, sometimes such as brown or maple, or cheap molasses, may, in the colder climates, result in occasional winter losses. For warmer climates, the molasses that is made in the South will answer very well, especially if you happen to have a quantity of it on hand. But where you have to buy it outright we think you will find the granulated sugar cheaper in the end.

How to Make Sugar Syrup.

Mix granulated-sugar syrup and water, equal parts of each, by measure, and stir until it is all dissolved. The best way, if you desire to make a quantity, is to pour into the honey-extractor, if you have one, the requisite amount of water. Start the reel going, and, while turning, pour in dipperfuls of sugar, one at a time. This gives the sugar, as it is poured in, time to mix with the water while it is in motion. If you make the mistake of pouring the sugar in first, and the water afterward, you will make a poor job of it. After the sugar is all in—a quantity equal to the amount of water by bulk—turn the handle for four or five minutes more, to make sure that all the sugar is dissolved. At first the mixture will look a little cloudy, as if the sugar was not all dissolved; but this milky look is due to the presence of air-bubbles, which will pass off in half an hour, leaving the syrup clear and limpid.

If you are careless enough to let your feeding go till late, use four parts sugar and three of water. It may then be necessary to turn the reel of the extractor a little longer. If you have no extractor you can use a tub or wash-boiler, and a stick to do the stirring; but it takes longer, and the work of mixing is harder.

If you desire to make only a small batch of syrup—a gallon or so—pour boiling water on the sugar, and then stir. In large batches cold water does just as well, providing the extractor is used.

Price List of Feeders.

Name.	Price of Weight		
	1	10	of 10.
Simplicity feeder.....	5	35	3 lbs.
Gray's covered feeder.....	15	1 30	8 "
Boardman feeder, 2-qt. complete.....	25	2 00	20 "
Boardman feeder, in the flat, without jar but with special cap....	15	1 25	6 "
Pepper-box feeder, 1 pint.....	6	50	3 "
Pepper-box feeder, 1 quart.....	10	90	2 "
Miller's feeder, nailed up.....	25	2 20	40 "
Miller's feeder, in flat.....	16	1 40	40 "

Cages for Queens.

As the Benton cage is so far superior to all others for mailing, it is the only one we offer for the purpose. We have sent queens in it to all parts of the country with surprising success, and, in the large size, have mailed queens to Australia and other distant points. To make it a complete all-round cage it only remained for us to adapt it for introducing, which, we are pleased to say, we have accomplished successfully. To introduce, all that is necessary is to pull out the cork, and the bees "do the rest," i.e., eat out the candy and liberate the queen by a well-known principle.

The three-hole principle makes the cage, to a certain extent, climatic. One of the end holes is filled with candy; the other end hole is well ventilated, while the center one receives ventilation only from the ventilated one. When the bees go over the mountains they will seek the center and warmer hole next to the candy. In hot climates they will naturally occupy the ventilated hole. Another feature of the cage is, that the holes are so small that the concussions through the mails do not jostle the bees about so much.

Small Benton Cage (two-thirds Size).

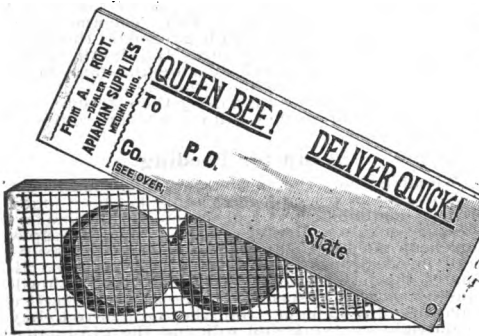


FIG. 116.

This, although small enough to go for one cent postage, is large enough to deliver queens alive to nearly all parts of the U. S. To prevent the absorption of the candy into the grain of the wood the candy-hole is lined with paraffine, and, when filled, is covered with paraffine paper. This will keep the food soft for a long period of time—a very important thing, by the way. When the candy dries up, the bees die. The cover, to insure prompt delivery, is printed in exact fac-simile of the cut. On the reverse side are printed directions that have stood the test in the filling of thousands of orders.

Long-distance Benton Cage.

For difficult and inaccessible points, and remote from railroad lines, as well as for islands bordering our coast, we use and recommend a ten-hole Benton—four of the holes, two at each end, being used for candy. This cage is about twice the size of the regular Benton above, and requires a domestic postage of 2c. It is not made for introducing, and, from the nature of the case, a long-distance cage can not be so adapted.

Export Benton Cage.

For mailing across the oceans to distant countries we make a cage a size larger than the long-distance Benton, having ten holes, two at each end for candy, and in other respects the same. The domestic postage on this, with queen and 40 attendants, will be 4 cents.

West's Queen-cell Protector.



FIG. 117.

These are to prevent bees from gnawing into and tearing down cells given them at certain times of the year. When a choice cell with one of these is placed in the hive, it can be readily picked out from others that may have started up elsewhere in the hive. With them the apiary can be requeened during the swarming season

at very little expense; and this, to a certain extent, will control swarming. Complete directions for use accompany each lot of cages. We also furnish spiral cages, to be slipped over these cell-protectors, as shown in the cut, at the right. These are designed to hold the virgin queen, after she hatches, till she can be disposed of. We can still supply the wire Doolittle queen-cell protectors.

Miller's Queen-catcher and introducing-cage.



FIG. 118.

This is a very handy little thing to have in the apiary. Any one who is afraid to catch the queen by the wings can slip this cage right over her, and she will crawl up, and then the plug can be inserted. During swarming time it is very nice for catching clipped queens on the ground in the same way. It can be used advantageously, not only for introducing laying queens, but even virgin queens. Being only $\frac{1}{4}$ inch thick it can be slipped down between the combs, or slid in at the entrance, if you have not time to open the hive. In either case the bees will eat out the candy and liberate the queens in from 24 to 36 hours.

Price List of Queen-cages.

Name and description.	Price of		Weight of 10.
	1	100	
Benton cage, complete with candy	5 40	\$3 50	8 oz.
" " " without	4 30	2 50	6 "
" " blocks bare	3 20	1 50	5 "
" " covers, printed	1 8	1 50	2 "
Miller introducing-cage	10 80	7 00	10 "
Long-distance Benton; complete	5 40	3 50	10 "
without candy	10 70	5 00	20 "
Export Benton, complete without candy	5 40	3 50	4 "
West's cell-protector	10 70	6 08	6 "
West's spiral cage	10 70	6 08	6 "
Doolittle cell-protector	3 15	1 20	2 "

Postage 1 cent for each ounce in weight, and 1 cent extra on each package. Benton cage-covers are printed both sides. Your name and address will be printed in place of ours for 25c per 100, or \$1.00 per 1000 extra over prices above.

Wire Cloth.

Price 1½c per sq. ft. in full rolls. Less than a full roll, 2c per ft. By mail, 2c per ft. extra.

Ordinary green window-screen wire cloth is used for making bee-cages, queen-cages, covering hives for shipping bees, putting over windows to honey-house, and a variety of purposes. As we buy in very large lots, direct from the manufacturers, we are able to make better prices than you will usually get at your hardware store. We have it in stock in rolls 100 ft. long, and in the following widths: 8, 12, 24, 26, 28, 30, 32, 34, 36, 38, 40, and 42 inches wide.

Queen-Register Cards.

Price 5c for 10, 40c per 100.

These are stiff cards about 2½x4½ inches, to be attached to the hive for keeping record in rearing queens. There are three circles, one giving the days of the month, another the months of the year, and another the different conditions to be indicated.

Slate Tablets.

Price each 2c (postage 1c), 10 for 15c, 100 for \$1.20.

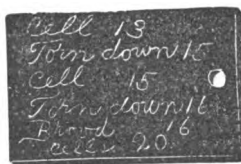


FIG. 119

when the writing is changed frequently. In winter they should be put under the cover on top of the cushion.

Queens.

Grade and Price of
Queens:

	Jan Feb Mar	Apr May Jun	July Aug Sept Oct	Nov Dec
Untested queen.....	\$1 50	\$1 00	\$ 75	\$1 00
Select untested queen.....	1 75	1 25	1 00	1 25
Tested queen.....	2 00	1 50	1 25	1 50
Select tested queen.....	3 00	2 50	2 25	2 50
Best imported queen.....	7 00	7 00	4 50	5 00
Fair imported queen.....	6 00	6 00	3 00	4 00

Untested Queens.

An untested queen is one raised from an imported mother, or a select tested Italian queen. She is untested because she has laid only a frame or two of eggs; and as these eggs or brood have not hatched into young bees, we do not know yet whether she will be a tested Italian or a hybrid. All we guarantee in an untested queen is, that she was raised from a pure mother, and fertilized in an apiary where Italian drones largely predominate.

Select Untested.

We have calls for yellow untested queens. While we do not regard them as any better for real business, there are some who go in for beauty. Their bees (for we don't know what they are yet) may not be any yellower than those from our ordinary untested, and may prove to be hybrids.

Tested Queens.

These are queens that have been laying for a month or so, and their young bees have already emerged from their cells. They have been in the hive long enough so we know their progeny are pure Italian—that is, bees having three yellow bands, and, as a natural consequence, are gentle. The queens are not bright yellow, but are usually striped with yellow and black. For real business they are just as good as the

Select Tested.

Like the tested their progeny is pure; but the queens themselves are large and yellow, young and prolific. Their bees are gentle and finely marked. The progeny of these queens, for real business, will probably be no better than those from the ordinary tested. But there are those who wish beauty and utility combined, and, so far as possible, we intend to fill that want.

Imported Italian Queens.

Imported queens, as the name indicates, are queens direct from Italy. While the queens themselves are a little darker than home-bred queens, they are prolific, and the bees are remarkable for gentleness. We charge more for imported queens, first, because they cost more; and, second, because they are worth more. While some of them are no better than our home-bred queens, the average run of them are superior. Now, if you want a yellow queen, don't order one of these. The queens, as well as their bees, are leather-colored. Sometimes their bees, while pure, show only two bands distinctly. The third, while present, does not appear until the bees are filled with honey.

Fair Imported Queens.

These are not as light-colored as our best imported, nor are they quite as prolific; but they are good queens to breed from.

Best Imported Queens.

These are selected from our imported queens, as we select the select tested ones. They are the best breeding queens that we sell.

Five-banded Stock.

This is simply a fancy stock of Italian bees showing anywhere from three to five bands, from the same queen. They are not necessarily better workers; neither are they more hardy or gentle. Indeed, the reverse has often been true; because in many cases the breeder in running for color seems to lose sight of the business qualities. But some of this yellow stock has shown all the desirable points. In offering these queens we do not guarantee that they shall show in the majority of

their bees five or even four yellow bands. We shall, however, endeavor to secure the best stock from the best and most conscientious breeders. But if you want bees for business we advise you to get the typical three-banded stock.

Price of five-banded queens same as three-banded in the table for the grade and time of year.

Carniolans.

These are a strain of gray blacks resembling somewhat the black bees of this country, but quite different in characteristics. They are hardy, good breeders, hang to the combs, and are but little inclined to deposit propolis. They swarm a little too easily, and, although reputed to be very gentle, we do not find them to be any more so than the Italians, and in some cases not so much so. Prices the same as the three-banded Italians in the table.

"Italian Queens, Small and Dark."

Every once in a while a customer who has just received a queen complains that she is small, and therefore worthless. Although we have explained this matter many times in the directions that accompany the queens, it seems we must do it here. *Queens just from the mails are always smaller and a trifle darker than after they have been laying in the hive for a while.* Don't complain, therefore, until you have tried her. Again, some small queens are known to be prolific and good.

When Queens Don't Lay.

As most queens, especially tested, taper off or stop altogether in egg-laying in September and October, they may have to be forced a little; i. e., give their colony half a pint of feed daily; and, if you have it, a frame of eggs and larvae from some other colony.

Italian Queens; What is the Test of their Purity?

Sometimes when we send out a tested queen, customers complain, just as soon as she arrives, that she is a hybrid; and this opinion is based wholly upon her markings, irrespective of the markings of the bees that accompany her. It is a well-known fact, that pure Italian queens—those whose progeny are gentle three-banded bees, vary in color all the way from jet black to a bright orange color. The fact that the queen is black herself is no evidence at all that she is a hybrid. One of the blackest queens we ever had—daughter of an imported—produced as finely marked and gentle Italians as we have ever seen. As a general rule, though, Italian queens are striped with yellow and black. Our select tested queens (and they cost more) have the abdomens almost all yellow except at its very tip. Our tested queens, as a general rule, are striped with black and yellow on the abdomen; and our imported queens are the same. Let it be understood, that the value of a queen does not depend upon her color. Some of the best breeding queens for business are dark-colored; and most honey-producers prefer what are called the leather-colored Italians.

How to Get Rid of Moth-Worms.

These pests are practically unknown in apiaries of Italians or their crosses. To get rid of the moths in hives of black bees the remedy is plain; viz., kill the black queens, introduce untested Italian queens in their stead, and as soon as the young yellow bees begin to hatch they will very soon walk the worms out of the hives, "by the ears," as it were. Moth-traps and all such are a snare and a delusion.

Queens by Mail to Foreign Countries.

Within the past few years we have sent queens by mail to foreign countries and distant islands of the sea—even as far as Australia and adjacent islands, Sandwich Islands, etc. Our success has been only fair, and we can not as yet guarantee delivery. We put them up in large Benton cages provisioned for a long journey, each queen having about 40 attendants. Our prices will be the same as in the table. Where queens have to be more than 40 days in the mails we would not advise the risk of the experiment. Remember, while we do not guarantee safe arrival outside of the United States, we put them up the best we know how.

Guarantee.

We agree to deliver queens in good order to any part of the United States or Canada. Never return dead queens unless you are asked to do so. It will hardly do to risk them by mail in the North, before May or after October. *All claims must be made inside of ten days after queens are received; tested queens, forty days.*

Bee-keeper's Library.

The first essential to successful and progressive bee-keeping is to become familiar with the habits and proper management of the bees, by reading one or more of the standard text-books devoted to this pursuit. All the bee-books in print make quite a little library. We list here all the most important ones published in this country.



A B C of Bee Culture. It is hardly necessary to speak of the merits of this work, which, judged from its extensive sale, is the most widely read book on bee culture in the English language, and, for aught we know, in any language. The last edition completes 62,000 copies from the press during the last 18 years since it was first printed. It has been greatly improved, and is also enlarged to 475 octavo pages, with over 800 illustrations, many of them full page. Some of the latter embrace a view of the apiaries of some of the largest and most successful bee-men. In the back part of the work is a biographical department of sketches and half-tone portraits of the most successful American apiarists. It covers every detail necessary to the successful management of bees; and, at the same time, contains hints, ideas, and plans valuable to the advanced bee-keeper. The alphabetical order of arrangement, together with the bold head-lines on every page, makes it a work of easy reference. The whole work is brimful of contagious enthusiasm, and the style simple and instructive. None of the matter pertaining to the apicultural part of the book is electrotyped, but all is kept in standing type, so that when any new thing of importance comes up it can be inserted in its proper place, and the old struck out. Its quick sales have warranted us giving it frequent and thorough revisions, and no bee-keeper having one of the earliest copies can afford to be without this latest edition. The book has grown so large that it now takes 19 cents postage to mail it. We have not changed our prices, however. Price \$1.25 postpaid; \$1.10 with other goods. GLEANINGS one year, club with the A B C, postpaid for \$2.00; indeed one can hardly afford not to have both, as one supplements the other.

Langstroth on the Honey-Bee. Revised by Dant & Son. The original work, by the father of American bee-keeping, was a most valuable one in its time. The revisers have brought it up to the present advanced stage of bee-keeping, and have greatly increased its value as a reliable source of information on all subjects relating to the honey-bee. They are practical men, and no better authority could have been selected for the revision. The work has been accepted as a standard in Europe and America. In fact, it has been translated into the Russian and French languages. We can furnish the French edition at the same price as the English. The book contains nearly 600 pages, 16 large plates, and 200 other illustrations. Price \$1.25 postpaid. By freight or express, 15 cts. less.

Manual of the Apiary. By the well-known writer Prof. A. J. Cook. This work treats of both the scientific and practical part of bees. It covers a wide field in the range of apicultural matters—many of the subjects not being compassed elsewhere in any one work. The author, besides giving his own opinions, cites the opinions of many of our greatest writers on apiculture. It contains 460 pages and 222 illustrations. Price \$1.25 postpaid; 10 cents less by freight or express.

Quinby's New Bee-keeping. This was originally written by Moses Quinby; and this, together with Mr. Langstroth's work, first placed American bee-keeping upon a paying basis. More recently, Mr. Quinby's son-in-law, L. C. Root, revised and thoroughly re-wrote the book, bringing it up within the present times. Mr. Root, like his father-in-law, made bees pay, and both are practical in their writings. Price \$1.50; by freight or express, 10 cts. less.

Dzierzon Theory. This is a book of 50 pages about half the size of this, by the Baron von Berlepsch. It is one of the most interesting books that was ever written, and one, too, that will never get out of date. The theories, for such they were when first propounded by that prince of bee-keepers in Germany, Dzierzon, are now virtually accepted as ax-

ioms by all the best bee-keepers of the country. Indeed, they form the very foundation of all our scientific and much of our practical knowledge on bees. Price, in tinted paper covers, only 10 cts.

Bees and Honey. By T. G. Newman, formerly the editor of the *American Bee Journal*. This is a 16mo in cloth and gilt, about 200 pages, fully illustrated. Its chief value is the part relating to the marketing and use of honey. Price \$1.00 postpaid.

Queen-rearing. By G. M. Doolittle. Any thing from the pen of this writer is generally pretty reliable. This contains much valuable information on the subject which gives the book its name. It contains 176 pages and 22 illustrations, bound in cloth. Price \$1.00 postpaid; 5c less not mailed.

Advanced Bee Culture. By W. Z. Hutchinson. This is a splendid work, especially for the advanced bee-keeper. Price 50 cts.

Amateur Bee-keeper is the title of an excellent little work on bees, especially adapted, as its name indicates, for the beginner, by J. W. Rouse. It contains 80 pages, and is neatly bound in paper. Price 25 cents.

Books on Rural Subjects.

Rural industries are so closely connected with bee-keeping that we do not think it out of place to include here a few rural books of our publication.

Merrybanks and His Neighbor. By A. I. Root. This is the title of a little book of 210 pages and 68 illustrations. It narrates the alternate failure and success of a beginner who ultimately, through much tribulation, becomes a successful bee-man and a power for good in Unionville. Appropriate original outs, many of them humorous, are interspersed here and there, representing some of the droll experiences which a beginner with bees sometimes passes through. Besides bees, it talks of other rural pursuits, such as gardening, maple-sugar making, etc. Price 20c; 3 cts. less when sent with other goods by freight or express.

What to Do, and How to be Happy while Doing It. The above book, by A. I. Root, is a compilation of papers published in GLEANINGS in BEE CULTURE in 1886, '7, and '8. It is intended to solve the problem of finding occupation for those scattered over our land, out of employment. The suggestions are principally about finding employment around your own homes. The book is mainly upon market-gardening, fruit culture, poultry-raising, etc. Price in paper covers, 50c; cloth, 75c. If ordered by freight or express deduct 8 and 10 cts. respectively.



A B C of Carp Culture. In paper covers, illustrated. This is a work of 76 pages, 7x10, written by Geo. Finley and A. I. Root, and the best authority on the subject of carp culture yet in print. The rearing of carp is a pleasant and profitable amusement. This book will tell you all about it. Price 35c; by mail, 5c extra.

The A B C of Potato Culture. This is T. B. Terry's first and most masterly work. The book has had a large sale, and has been reprinted in foreign languages. It was revised and rewritten in 1893, and the new edition makes 220 pages, half the size of this, fully illustrated, and bound in leatherette cover printed in gold. Price 35 cts.; if sent by mail, 40 cts.



Winter Care of Horses and Cattle. This is friend Terry's second book in regard to farm matters; but it is so intimately connected with his potato book that it reads almost like a sequel to it. If you have only a horse or a cow it will surely pay you to invest in the book. It has 44 pages, and 4 cuts. Price 35c; by mail, 40c.

The A B C of Strawberry Culture. 150 pages, fully illustrated. Price 35c; by mail, 5c extra. This is also one of Terry's, and has received some very high words of praise. Who that keeps bees does not also have a little garden-patch? If you would learn to raise in it that most luscious of all fruit, the strawberry, with the best results, you can not be without this little book. Even if you don't grow strawberries you will be the better for reading it. Pages one-half size of this.





Maple Sugar and the Sugar-bush. By A. J. Cook. Price 35c; by mail, 40c. This is by the same author as the Manual of the Apiary, and is most valuable to all who are interested in the product of our sugar maples. No one who makes maple sugar or syrup should be without it; 44 pages, fully illustrated.

Tile Drainage. By W. I. Chamberlain. This is a valuable companion to our other rural books. It embraces the experience of forty years of one of our foremost practical agriculturists, who has laid with his own hands over 15 miles of tile. Price 35c; by mail, 40c.



Tomato Culture. In three parts. By J. W. Day, D. Cummins, and A. I. Root; a most valuable treatise embracing field culture, forcing under glass, and raising plants for market. Valuable to any one raising garden stuff of any kind, aside from tomatoes. 150 pages; illustrated. Price 35c; by mail, 40c.



In order to become a progressive apiarist, and at the same time realize the most money from your bees, you can not afford to be without a bee-journal. We are publishers and proprietors of GLEANINGS IN BEE CULTURE. This is a 36-page illustrated semi-monthly journal, printed on fine paper with a tinted cover and, with the additional matter which has been inserted during the past years, the volumes have aggregated nearly 1000 pages each. It is devoted to bees, honey, and home interests. It is spiced with the following departments: Stray Straws, short, pithy items by Dr. C. C. Miller; General articles from the most successful bee-men; Heads of Grain, shorter communications, with letters and comments and general instruction from the editor; Answers to Questions from Beginners; Seasonable Questions, by G. M. Doolittle; Honey Statistics; Trade Notes; Notes of Travel; Editorials; Special Notices, and the Honey Column. The whole journal is handsomely illustrated with expensive original engravings. Price for one year, \$1.00. A sample copy sent free on application. For \$2.00 we will send GLEANINGS for one year, and the A B C, in cloth.

Binder, of half-oval back, with words "GLEANINGS IN BEE CULTURE" in goldleaf, in cloth, 65c; cloth and leather, 75c; by mail, 17c extra.

Price List of Books.

Name.	By Mail.	Post.
A B C of Bee Culture, cloth.....	\$1 25	15
Langstroth, Revised by Dadant, cloth.....	1 25	15
Quinby's New Bee-keeping, cloth.....	1 50	10
Manual of the Apiary, cloth.....	1 25	10
A Year Among the Bees, cloth.....	50	5
Bees and Honey, T. G. Newman, cloth.....	1 00	5
Blenden Kultur, German, paper.....	40	5
Queen-rearing, G. M. Doolittle, cloth.....	1 00	5
Thirty Years Among the Bees, paper.....	50	5
Success in Bee Culture, Heddon.....	50	5
Foul Brood, Wm. R. Howard, paper.....	25	2
Advanced Bee Culture, Hutchinson.....	50	5
The Dzierzon Theory, paper.....	10	1
Amateur Bee-keeper, Rouse.....	25	3
Merrybanks and his Neighbor, paper.....	20	3
What to Do, and How to Be Happy While Doing It, cloth.....	75	10
The same in paper covers.....	50	8
A B C of Carp Culture, paper.....	40	5
A B C of Potato Culture, paper.....	40	5
A B C of Strawberry Culture, paper.....	40	5
Winter Care of Horses and Cattle, paper.....	40	5
Maple Sugar and the Sugar-bush, paper.....	40	5
Tile Drainage, by W. I. Chamberlain.....	40	5
Tomato Culture.....	40	5

If you order any of these books with other goods by freight or express, you may deduct from the postpaid price in the first column the postage in the second column.

Seeds of Honey-plants.

Other honey-plant seeds are given in our seed catalog, mailed on application.

Alsike Clover.—Can be sown almost any time, but perhaps gives best results for seed when sown in April or May. About 8 lbs. are required per acre, and it does not blossom much until the second year. Its treatment and cultivation are much the same as for common red clover, but the seed is saved from the first crop.

White Clover.—The best honey in the world, all things considered, is, without doubt, that obtained from white clover. White Dutch clover is said to be a little larger than the common white, and as it is pretty difficult to save the seed from the common, nearly all the seed in the market is White Dutch.

Buckwheat.—We think we shall have to regard this as a safe investment generally, for artificial pasturage, although in many localities it yields honey only occasionally. About 3 pecks per acre are usually sown, and it may be sown in April, May, June, July, or even August, but in the latter month it would usually furnish only blossoms for the bees and no seed. If you want much honey, you must have good soil. In our State there are 48 lbs. to the bushel.



FIG. 128.

At the present time the Japanese buckwheat is by all odds further in advance than all other kinds. The grain is larger in size, and it gives a very much larger yield of grain. It is fully equal in quality for flour to any of our old kinds, and very much ahead of them in quantity. We believe it yields fully as much honey as any other buckwheat known. This has now become so plentiful and so much superior to other kinds that we handle no other.

We have an 8-page pamphlet, being a collection of articles from different localities, telling just how to raise buckwheat. Mailed for 5c, or given free to all purchasers of our seed.

Price List of Seeds.

The seeds listed here are as clean and as fresh as we can get. As prices of seeds fluctuate considerably, we can not guarantee these prices, but will give the best price ruling at the time your order is received. Bags are included at these prices.

As all States do not agree on weight of a bushel of various seeds, we quote by the pound entirely. By mail, 8 cts. per lb. extra.

Name.	Price—	1 lb.	10 lb.	50 lb.	100 lb.
Alsike clover seed.....	15	\$ 1 35	\$ 6 25	\$12 00	
White-clover seed.....	25	2 40	11 25	22 00	
Alfalfa clover seed.....	13	1 15	5 25	10 00	
Scarlet or Crimson.....	10	75	3 25	6 00	
Sweet or Mellilot, unhulled.....	13	1 15	5 25	10 00	
Sweet or Bokhara, hulled ..	18	1 50	7 25	14 00	
Japanese buckwheat.....	4	25	90	1 60	

How to Italianize an Apiary.

There are several ways this can be done: First, by buying tested queens for every one of the colonies containing black or hybrid queens. The old queens should, of course, be removed, and the hive left queenless for a couple of days before the new mothers are introduced. This method, although the surest, is rather expensive.

A cheaper way, and the one we would generally recommend, is to buy untested Italian queens after the honey season, or when the price is the lowest—say during August, September, and October: see table. Nine-tenths of the untested we send out will prove to be purely mated; and then, if the beginner loses his queen in introducing, the loss of an untested is only half that of a tested.

Still another way (and it implies a knowledge of queen-rearing) is to purchase three or four select tested queens; introduce them to some good stocks, and then from these raise virgin queens. In order that these queens may stand a fair chance of being fertilized by pure Italian drones, their colonies should be given drone comb, and as many Italian drones should be reared as possible. In the mean time, perforated zinc in the shape of Alley drone-traps or, perhaps better, entrance-guards, illustrated on page 11, should be attached to the entrances of all colonies having impure drones. If you have very many colonies, use entrance-guards, as the traps are too expensive. Then, while the choice virgin queens are being mated, there should be nothing but Italian drones allowed to fly, as the others will be shut up or trapped. Of course, there may be black drones in the air, from your neighbors' bees, or from bees in the woods. If possible, get your neighbor to allow you to put perforated zinc, or entrance-guards, on the entrances of his hives, for a few days while your queens are being fertilized. The percentage of drones that may be from the bee-trees will be very small, and your virgin queens will stand a good chance of meeting pure Italian drones. If you do not know how to rear queens, we would by all means advise you to get some good text-book; for instance, the *A B C of Bee Culture*. By investing \$1.25 in this you may save yourself hundreds of dollars in blundering experience. For particulars see page 30.

How to Make a Start in Bees.

We advise you to buy black or brown bees in your own vicinity. Bees may be purchased in box hives, anywhere from three to five dollars per colony. They should then be transferred, as per directions for transferring, on page 32. To give you an idea of the necessary outfit, we have given a list on page 3 of the supplies needed. After you have gotten the hives in the flat, nail them up, put in the foundation, and then you are ready to transfer the bees. When they are nicely going on their new set of combs, you can then, if you prefer, Italianize them. From one colony, by good management, you can increase, by dividing, to 4 or 5 during the season. For directions, see *Artificial Swarming*, and *Dividing*, in the *A B C of Bee Culture*; cloth, \$1.25. For particulars see page 30. Such a start can be made very cheaply, and at the same time give you valuable experience in the care and management of bees.

How to Transfer from Box Hives to Dove-tailed Hives.

The old-fashioned way was, to pry off the side of the box hive, cut out the combs, and fit them, after a fashion, into the brood-frames. But this takes a great deal of time, and at best it is a sticky, messy job, to say nothing of the mashed-up bees and stings, and finally the result is a lot of patched-up, crooked combs. The combs in box hives are usually so crooked, so old, and contain so many drone-cells, that it will be money in pocket to purchase brood foundation, fasten it into frames on wires ready to receive the transferred colony. See *WIRING*, on page 10, and *FASTENING FOUNDATION*, page 14.

We will assume that your hive or hives, having been received in the flat, are put together and painted, and contain frames of wired foundation ready for the bees. Light your smoker and put on your bee-veil. Move the old hive back four or five feet, and put the new hive in its place. Prepare a small box about 8 inches deep and one side open, that will just cover (not slip over) the bottom of the box hive. Turn it upside down; slip the living-box over it, and drum on the sides of the hive with a couple of sticks until about two-thirds of the bees pass up

into the box. Lift off gently the box containing the bees, and dump in front of the entrance of the new hive. Make sure that the queen is among them, by watching for her as she passes with the rest into the entrance. If you do not discover her, look inside the hive. If you still do not find her, drum out a few more bees from the old hive again until you do get her, for, to make the plan a success, she must be in the new hive.

Return to the box hive and turn it right side up and set it down a couple of feet back of the new one, with its entrance turned at right angles. You now have in the hive about one-third of the original colony, the combs, and all the brood. Allow the old hives to stand for at least 21 days, at the end of which time the brood will be hatched out, with the exception of a little drone brood which will be of no value. Turn the hive upside down, and drum the bees out again into the living-box, after which dump it in front of the entrance of the new hive, as before. Your job of transferring is now completed, and all you have on hand is an old box hive containing a lot of old crooked combs, with perhaps a little honey and drone brood in it. The honey can be extracted, or used as chunk honey on the table, if fit for use. The rest can be melted up into wax, and the hive itself will make first-class kindling-wood, because it is smeared over on the inside with propolis and bits of wax.

The method above described is what is known as Heddon's short way. As it is neater, quicker, and, we may say, cheaper, and certainly more satisfactory in its results, we recommend it in preference to the old way. For fuller particulars see *A B C of Bee Culture*, page 30.

How to Prevent or Control Swarming.

You are not able to be at home, and we will assume that the rest of the folks are either afraid to tackle swarms or prefer to do it with as little labor as possible, when they do come out; or it may be you have an out-apiary. In either case you desire to discourage, and, if possible, prevent swarming, or so manage it that the swarming tendency will take care of itself largely in your absence.

Prevention by Caging the Queen.

In the production of comb honey there is only one reliable method, and that means so much work that the majority of bee-keepers do not practice it. Cage the queen of each colony over the brood-nest at the approach of the swarming season, and then in eight days cut out the queen-cells, and in eight days cut the cells again; but if you haven't a large apiary, and you have spare time nights and mornings, the labor will not figure much. The cutting-out of the cells alone or giving plenty of surplus room will help greatly to discourage, if not prevent swarming altogether.

The Clipped-wing Plan, or the Easiest Way of Managing Swarming.

But most apiarists think it an advantage to let the bees swarm once; and as all their queens' wings are clipped, when the swarm comes forth the queen is caught in a Miller queen-catcher (see page 28), cage as she is crawling around in front of the entrance. The old hive is then removed to a new stand, and an empty one (several such should be kept in readiness) put in its place when the queen is put in front of the entrance caged. The bees, on discovering the absence of the queen, will soon return pell-mell to the old stand. The surplus chamber, if there was one on the old hive, is put on the new one now on the old stand.

This manner of catching the swarms is so little labor that the "women-folks" do not object to it since there is no handling of the swarm itself, no climbing of trees after it, and it is all done, practically, by catching the queen. The empty hive is easily handled, and the old hive need be moved but a few feet, when you will take care of it when you get home. You will also need to release the queen.

The Entrance-guard Plan.

In place of clipping the queen's wings, many apiarists prefer the Entrance-guards (see page 11), one of which is attached at every entrance. The queen can not, of course, pass the perforated zinc, and there is, in consequence, no danger of her getting lost in the grass. Then if the women-folks won't go near, the bees will go back to the old hive; but you may be sure they will try it over again unless you give them a new hive full of empty combs or frames of foundation. They will then go to work, and probably give it up for the rest of the season. This

plan has the advantage that every thing will take care of itself till you get home, and there is no danger, either, that you will lose any swarms.

The Alley Trap—See Page 11.

This goes one step further, and catches the queen in a compartment by herself. The whole trap may then be detached, and the queen liberated in a new hive of combs on the old stand, carrying out the plan outlined under the "clipped-queen" plan above.

Prevention of Swarming when Running for Extracted Honey.

This is far easier to accomplish. Give the queen unlimited room for egg-laying, and, if necessary, put on another eight-frame body. From the lower story draw out a couple of combs and put them above, filling out the space in both stories with empty combs or frames of foundation. Extract from both stories as often as need be, or put on a third story of empty comb or foundation. The main thing seems to be to give the queen and bees an abundance of room. You may ask why you could not do this for comb honey. Before the bees go into the sections they will fill the combs next to the brood with honey; and if the season should be short you would get no honey in the sections. But in extracting you can take from the bees just as much as, in your judgment, the bees can spare. This subject is treated far more fully in our *A B C of Bee Culture*. Price, in cloth, \$1.25—see page 80.

How to Produce Comb Honey with Dove-tailed Hives.

The first important requisite is early brood-rearing, so that there may be a large force of bees at the right age for gathering honey as soon as the harvest opens up. The hive should be crammed full of brood a month or six weeks before the harvest, and to secure this it may be necessary to practice stimulative feeding as given on page 80, even though there is honey in the hive. In addition it would be well to put on winter cases if the hives are single-walled; for early in the spring, especially in the North, the brood-nest needs protection. As soon as the regular honey season is fairly begun and the bees whiten the upper edge of the combs, and before they begin to be cramped for room, place on a super filled with sections; if the sections contain full sheets of foundation it will be better.

If the bees refuse to go up into the boxes, remove one or two sections from the center and put in place of them one or two containing drawn-out comb partly filled with honey. These may be gotten from some other colony already at work or from a store held over from the preceding season. A few of such sections should always be saved over. If the bees still refuse to go to work, either the working force is too small or there is little or no honey in the fields.

When they have filled the super about half full, raise it up and put another empty one under it, but do not do so if there is a prospect of the honey being out off within a week or ten days, otherwise you will be liable to have a lot of unfinished sections on your hands, to be sold at a reduced price.

As the season slackens up there should be only one super on the hive, and in order to get all the sections completed it will probably be necessary to alternate the section-holders; i. e., change the center ones to the outside, and the outside to the center, because the bees usually work better in the center than at the outside. By alternating, the bees will probably fill and complete all the sections at a time. This is the peculiar feature of the section-holder arrangement.

As soon as the combs are capped over, they should be taken from the hive. To get the bees out of the sections, smoke down between them, take the super off and shake it vigorously. Smoke and shake again till all or nearly all the bees are out. A better way is to use the bee-escape shown on page 12. This is placed on the night before, and there will generally be few if any bees there the next morning. For further particulars on how to produce comb honey see the *A B C of Bee Culture*, especially written for beginners. Price in cloth of 400 pages, \$1.25. See p. 80.

How to Produce Extracted Honey.

There should be a large force of bees secured by early brood-rearing, as in the case with comb honey. As soon as honey begins to come in, and bees commence to be a little crowded, place a hive-body or

extracting super, containing a full set of drawn-out combs, on top, with a perforated zinc honey-board between them. If you haven't the combs, give frames containing full sheets of foundation. If nectar is coming in slowly, put on only half as many combs, with a division-board up close to it; or if you are using shallow extracting-supers, give only one super at a time. As the combs begin to be filled with honey, if the honey-flow continues till the super containing them and put on another one, with empty combs, between it and the brood-nest. The combs before extracting should be pretty well sealed.

If you haven't time to extract as soon as the combs are capped over, leave them in the hive, giving the bees empty combs below as fast as needed. At the end of the season, or when you have time, extract. The longer the honey remains on the hives up to two or three months, the richer it will become.

To get the bees off the combs use the Coggsall bee-brush, as it is far better for the purpose than any other brush we know of; but it is better to dispense with the brushing of combs, altogether when practicable, and use instead the bee-escape; see page 12.

To uncap, use an Abbott or Bingham honey-knife, occasionally dipping it in hot water. Save the honey that drains from the cappings, because this is the very best. For this purpose we know of nothing better than the Dadant uncapping-can. When ready to extract, the extractor should be screwed down to a bench just high enough so that the honey-gate will come over a receptacle or a pipe leading to one where the honey may be further evaporated. To get at the extractor conveniently, it may be necessary to stand on a box so that the crank can be operated easily, as well as to facilitate the removal of the combs from the extractor. If your combs are unwired, you should by all means have a reversible extractor. With this you can extract from one side partly, and then reverse the combs; throw out all the honey on that side, and then return to the first side, and finish up. This will prevent breaking down the combs. We advise all those who do very much extracting, not only to have all their combs wired, but to have a reversible extractor. It doesn't pay to waste time with the non-reversing machines and unwired combs when much honey is to be thrown out. Fuller particulars on this subject are given in our *A B C of Bee Culture*. Price in cloth of 400 pages, \$1.25. See page 80.

Wintering.

A good deal depends upon locality as to when preparations should be made.

If, at the close of the summer, your bees are short of stores, and have no prospect of a fall flow of nectar, the earlier they are fed up the better. Colonies may be fed late in the fall, or just before actual cold weather comes on, but it is not advisable. If you have been careless and have put it off till late, use the Miller feeder, or percolator crocks, described under FEEDERS.

Wintering in Single-walled Hives.

Single-walled hives, as for instance, the Dovetailed, are cheaper and handier in many ways, and hence the majority to whom these hints are addressed are obliged to winter in them. South of parallel 36, or even 40 in some localities, these hives will winter bees outdoors very well with but little protection. They should be sheltered, of course, from the prevailing winds, and the two outside frames (most colonies will spare them) should be removed, and a chaff-packed division-board substituted. A half-story, or super filled with chaff, should then be put on top, with a Hill device placed below. In the extreme Southern, or Gulf States, no additional protection is needed, and the only thing to guard against is actual starvation.

North of parallel 40, single-walled hives should either be put in our Dovetailed outside winter case, as shown on page 7, or carried into a cellar, or other repository proof against freezing. Colonies in such hives, if strong enough, may be wintered outdoors without the outside cases, but usually it is at a considerable loss of vitality. In fact, a whole apiary, if the winter should be mild, will live through; but sad experience has shown repeatedly that it is best to prepare for a cold winter. Nothing is so discouraging to beginners, and so disastrous to bee-keeping, as to lose, during the winter, half or two-thirds of the colonies, with the rest weak, and hardly fit to be called colonies. Put them in winter

sages, or, lift the frames out of the single-walled hives, and put them in double-walled or chaff hives; or, what will be cheaper and more convenient to most bee-keepers, carry them into the cellar.

How to Winter in the Cellar.

A good dry cellar, into which frost never penetrates, is essential; and, if possible, that part which is used for vegetables should be partitioned off from the part occupied by bees. The windows, while they should permit of easy opening to let in fresh air, should also be so screened as to shut out all rays of light. The cellar should be absolutely dark, to keep the bees from flying out and dying on the floor. As to size, 10x10x7 feet high (or equivalent capacity) will be about right for 75 colonies, although 100 or even more may be accommodated, provided the apiarist is skilled enough to give the requisite amount of ventilation (not too much) and to maintain the proper temperature, 45 degrees.

Before putting the bees in the cellar, lay 2x4 scantling parallel, and about 8 inches apart, on the cellar bottom next to the wall. Then some cool day (in our locality about the first of December), when bees can not fly, or when the clusters have contracted off the bottom-boards, carry the bees into the cellar, bottom-board and all. We use what we call our hive-carriers, the same as shown in the accompanying cut. They are simply bails with sharpened hooks to catch under the bottom-board as shown.

Price, 25c per pair. They save a great deal of hard stooping, and make the carrying of hives to cellar a comparatively easy matter. To pick the hive up by the hand-holes, the bottom is liable to drop off; but the carrier picks the hives up by the bottom.



FIG. 129.

Place the first hive near one corner of the cellar; lift it off its bottom-board by the hand-holes, and set the bottomless hive across the scantlings. With the carriers bring in another hive (two can work to better advantage—see cut); lift it off its bottom as before, and set it on the scantlings beside the first one, with about 5 inches of space between. Place the third hive beside the second with the same distance intervening, and continue thus with the others until the bottom row is completed. We always aim to bring in the heaviest hives first, so as not to be obliged to lift them clear to the top of pile. We next begin the second tier, the first hive of which is set directly over the 5-inch space between the first two put into the cellar. In this way the hives are to be piled one upon two others thus:

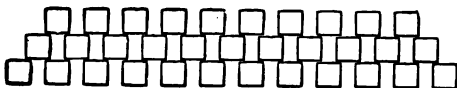


FIG. 130.

This leaves ample bottom ventilation and a chance for the dead bees to drop down out of the way; and then you have a chance, during the winter, to look up and see how they are doing. To do this we use a small hand looking-glass; tilt it under one of the hives, and with a lamp, or, better, a small dark-lantern, we can see how the bees are doing.

It won't do to leave the bottom-boards on in the cellar, unless they have a large square hole cut in the center. Some put blocks under the four corners of the hive, so as to leave a space all around under the hive. This is more fussy, and we prefer to leave off the bottom-boards entirely, and pile them up by themselves. The covers must be left on; and it is better to have them sealed down with propolis. No Hill devices are necessary.

The manner of carrying bees out in the spring is simply to set a hive on one of the bottom-boards, and, with carriers, place it outdoors. It is better to protect them for a while with the winter cases, see page 7. It does not matter much if the hives don't go back where they were the previous fall. The bees will readily adapt themselves to their new location after the long winter sleep. During the winter keep the temperature as near even as possible. Some prefer 40 and others 45 degrees. Toward spring, or when the weather warms up outside, the bees may get a little restless. Open the cellar win-

dows at night, or it may be advisable to leave them open a little all the time. During real cold weather you will have no trouble, except to prevent the temperature from going too low. You are then to shut the windows up tight. Don't be alarmed toward spring if dead bees accumulate on the cellar bottom. They are simply the old bees that are diseased, or what is more probably true, bees that have died from old age. If they accumulate too much, sweep them up and carry them out.

How to Winter in Double-walled or Chaff Hives.

Outdoor wintering is simpler than the indoor. It requires less skill, and the beginner will more likely have success. Our chaff hives have everywhere given uniformly good results, and no matter whether the winter be mild or bitter cold, they "get there just the same."

The method of procedure is simply to contract the brood-nest to as many frames as the bees will cover comfortably, and insert a division-board. Lay a Hill device over the center of the frames; spread over the burlap sheet (any porous material will do), and tuck down carefully the large chaff cushions. If the bees have 25 lbs. of sealed stores they need not be touched again till along next spring. We would not give two cents to have them insured.

Caution.

In conclusion, don't "put off" preparations for winter. Commence early in the fall to feed; and if outdoors, the sooner they are packed, the better. There is nothing lost in being a little early, and a good deal may be lost by being a little too late. For further particulars on this subject we would refer you to the *A B C of Bee Culture*, a cyclopedia of over 400 pages. See table of prices on page 80.

Foul Brood; Its Treatment and Cure.

Symptoms.

Some of the brood fails to hatch. Cappings here and there are sunken and perforated at the center. On opening one of these cells there will be found a dead larva lying on one side of the cell, somewhat shrunk, and of a brownish color, varying all the way from a light pale brown to a dark brown. In the more advanced stages the brown is of the color of a coffee-berry after being roasted. In the incipient stages the brown is of a color of the coffee we drink, when greatly diluted with milk. But so far all these symptoms may be present as the result of chilled, overheated, or starved brood. But to determine whether it is the real foul brood, run a toothpick into the dead larva and then draw it slowly out. If the matured mass adheres to the end of the pick, about like spittle, and finally the fine thread breaks when the pick is drawn back, it is probably a case of foul brood. With all other forms of dead brood, with perhaps one exception, this ropiness does not appear; but with foul brood it invariably appears. Now, there is another symptom; and that is, the odor, while not exactly foul, resembles greatly that from a cabinet-maker's glue pot; and when the disease is pretty well advanced in the hive, the odor will make itself manifest upon lifting the cover or quilt, even before exposing the brood. If other colonies are affected in a similar way, and the disease appears to spread, it is unquestionably a case of foul brood.

Treatment.

Prepare a clean hive containing only frames of foundation. Toward night shake all the bees from the diseased or suspected colony on to frames of foundation, and place the new hive on the stand of the old one. If possible, the new hive should resemble exactly the old one; otherwise the bees will be confused, and carry the germs of the disease to other colonies. Compel the bees to use up the honey in their honey-sacs in drawing out the foundation. Don't feed for a day or so.

The diseased honey in the honey-sacs will be converted into wax, and the new product will be entirely harmless. The old combs of the hives should be burned. Do not economize by melting up the wax. You will not get enough to pay, besides run the risk of spreading the disease all over the apiary. The old hives should be immersed in boiling water for at least 15 or 20 seconds. Splashing boiling water on it will hardly be sufficient. Painting the inside of the hive with a strong solution of carbolic acid may answer; but we know that boiling the hives is effectual. The hive, after boiling, may be used again with perfect impunity, with new colonies.

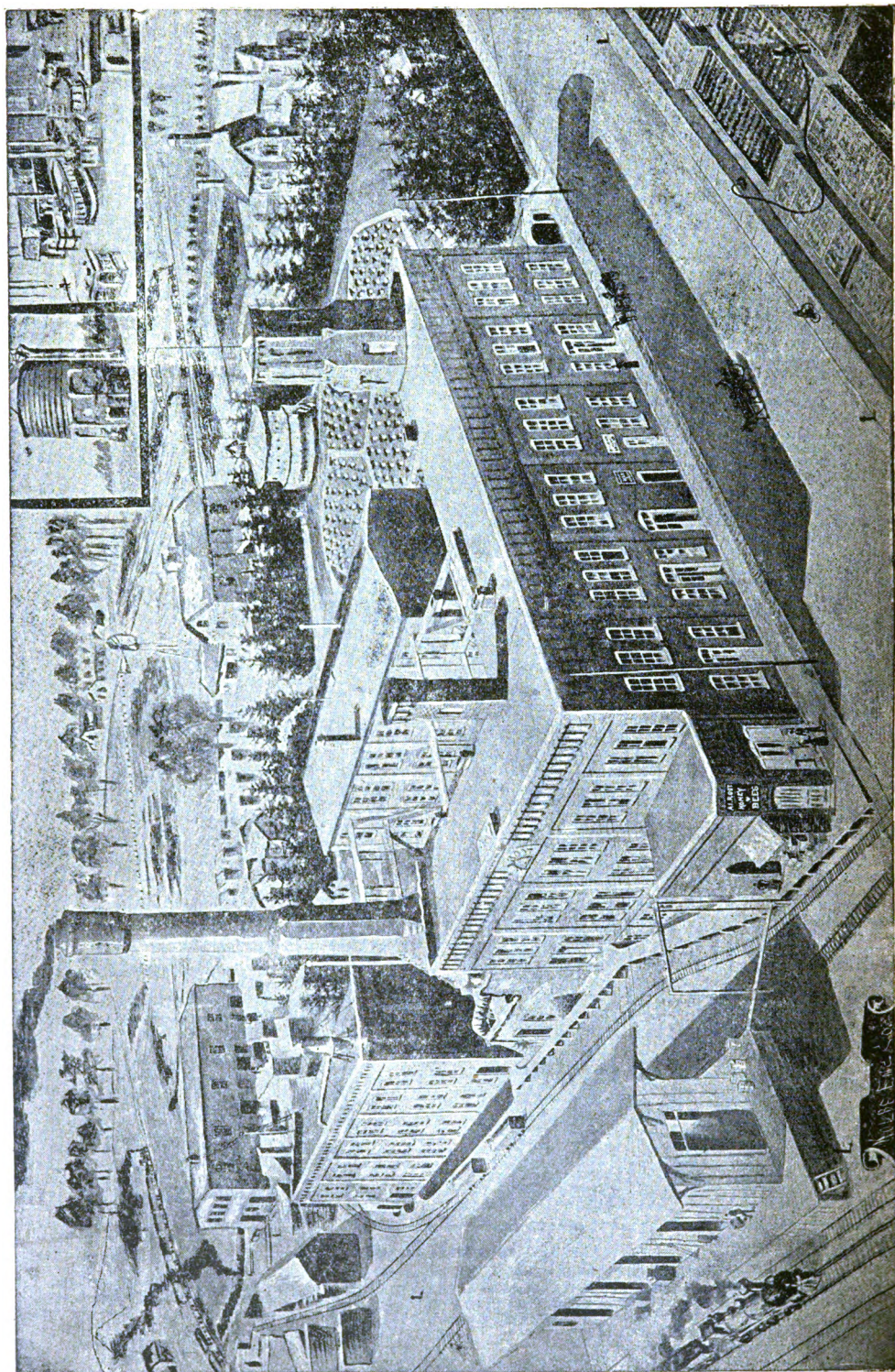
INDEX TO SUPPLIES.

Alfalfa Clover.....	31	Foundation-roller.....	15	Quinby Smokers.....	20
Alley's Drone-trap.....	11	Frames.....	9, 10	Rabbits for Hives.....	5, 7
All-wood Frame.....	9	France Pepper-box Feeder.....	27	Raised-cover Pails.....	24
Alsike Clover Seed.....	31	Gable Cover.....	4	Record Tight Seal-cover Pails.....	24
Beginner's Outfit.....	3	Gearing for Extractors.....	17	Rests for T Tins.....	21
Bee Books and Journals.....	30, 31	Glass Honey-packages.....	23	Rubber Gloves.....	19
Bees and Queens.....	20	Glass for Shipping-cases.....	23	Rubber Stamps.....	25
Bee-brushes.....	21	Gleanings in Bee Culture.....	31	Rules for Ordering.—Order-sheet	
Bee-climbers.....	19	Globe Bee-veil.....	18	Sample Mulling-blocks.....	24
Bee-entrance Guards.....	11	Gloves, Rubber.....	19	Scales.....	25
Bee-escape.....	12	Gray Feeder.....	27	Screw-cap Gato and Caps.....	24
Bee-tent.....	10	Higginsville Cover.....	4	Section-holders.....	5, 13
Bee-veils.....	19	Hill's Device.....	10	Section-boxes.....	13
Benton Cage.....	28	Hilton Dov. T Super.....	13	Section-press.....	13
Blinder for Gleanings.....	31	Hives.....	4-3	Seeds of Honey-plants.....	31
Bingham Smokers.....	20	Hive-carriers.....	34	Separators, Wood.....	12
Boardman Wax-extractor.....	18	Hive-clamp.....	6	Separators, Tin.....	21
Bottom-board.....	6	Hive-stand.....	8	Shallow Extracting-frames.....	9
Brood-frames.....	9, 10	Hoffman Frame.....	9	Shipping-cases.....	22
Brood Foundation.....	31	Honey-cans.....	21	Show-case.....	23
Buckwheat.....	31	Honey-boards.....	11	Signs.....	25
Burlap.....	28	Honey-boxes.....	12	Simplicity Feeder.....	27
Cages for Queens.....	15	Honey-extractors.....	17	Size of Hives.....	4
Carlin's Foundation.....	22	Honey-knives.....	21	Slate Tablets.....	28
Cartons.....	22	Honey-packages, Glass.....	21	Smokers.....	20
Cement-coated Nails.....	26	Honey-labels.....	22	Solar Wax-extractor.....	18
Chaff Cushions.....	26	Honey Shipping-cases.....	22	Spur Wire-imbedder.....	14
Chaff Division-boards.....	10	How to Control Swarming.....	32	Square Cans.....	24
Chaff Hive.....	8	How to Get Rid of Moths.....	20	Square Glass Jars.....	23
Cheese-cloth.....	26	How to Italianize an Apiary.....	32	Staples.....	21, 26
Clark's Smokers.....	20	How to Pack Comb Honey.....	32	Super-covers.....	10
Crane Smoker.....	20	How to Produce Ext'd Honey.....	32	Surplus Foundation.....	11
Clover.....	31	How to Produce Comb Honey.....	31	Swarming-device.....	19
Coggshall's Bee-brush.....	21	How to Ship Comb Honey.....	22	Swiss Wax-extractor.....	18
Comb-bucket.....	11	How to Transfer from Box.....	32	Tacks.....	16
Comb Foundation.....	14	Hives.....	32	Taylor's Comb-leveler.....	21
Comb-foundation Machines.....	15	How to Wire Frames.....	10	Ten-frame Hives.....	4, 7
Combined Crate.....	21	How to Winter Bees.....	34	Tent.....	19
Comb-leveler.....	21	Hubbard Section-press.....	23	Thick-top Frames.....	9
Cornell Smokers.....	20	Jam-jars.....	31	Thumb-screws, Wood.....	21
Cotton Cloth.....	26	Japanese Buckwheat.....	31	T Super and T Tins.....	12, 21
Cowan Rapid Extractor.....	16	Jones Honey-pails.....	24	Tin for Hive-covers.....	6, 8
Crate-staples.....	26	Jones Wax-extractor.....	15	Tin Rabbits for Hives.....	5, 7
D. Section-case.....	6, 13	Labels for Honey.....	25	Tin Packages for Honey.....	24
Dadant Shallow Extr. Super.....	6	Little Detective Scales.....	28	Tin Separators.....	21
Dadant's Uncapping-can.....	17	Long-distance Cage.....	19	Tinned Wire.....	7
Dadant Tin Pails.....	24	Manum's Swarming-device.....	27	Tinned Wire Cloth for Extr's.....	17
Daisy Foundation-fastener.....	14	Miller Feeder.....	28	Tumblers, Glass.....	23
Daisy Foundation-roller.....	15	Miller's Queen-catcher.....	23	Twelve-frame Hives.....	4-7
Davis Bee-brush.....	21	Muth Jars.....	26	Uncapping-cans.....	17
Dextrine.....	25	Nails.....	16	Union Scales.....	25
Dipping-tank.....	15	Novice Extractor.....	10	Van Deusen Frame.....	9, 10
Division-boards.....	10	Odd-sized Frames.....	12	Van Deusen Hive-clamp.....	10
Doolittle Wax-extractor.....	18	One-piece Sections.....	23	Veils.....	19
Double-pointed Tacks.....	26	Pails, Glass.....	24	Ventilated Gable Cover.....	4
Dovetailed Chaff Hive.....	8	Pails, Tin.....	24	Vials for Honey Samples.....	24
Dovetailed Hive.....	4-6	Paint for Hives.....	7	Victor Scales.....	25
Dovetailed Super.....	6	Parker's Machine.....	25	Wax-extractors.....	18
Dovetailed T Super.....	6, 13	Paraffine Wax.....	8	Wax, Paraffine.....	25
Dovetailed Winter-case.....	7	Parts of Chaff Hives.....	8	West's Queen-cell Protector.....	23
Dry Goods.....	26	Pasteboard Boxes.....	22	White Clover.....	31
Duck.....	20	Peavine Clover.....	31	Wide Frames.....	21
Easterday's Wire-imbedder.....	15	Percolator Feeder.....	27	Winter Case.....	7
Electrical Wire-imbedding.....	15	Pepper-box Feeder.....	27	Wintering.....	10
Enameled Cloth.....	16	Perforated Zinc.....	10	Wired Frames.....	15
Entrance-guards.....	11	Plain Division-board.....	25	Wire-imbedder.....	14, 15
Export Benton Cage.....	28	Platform Scales.....	23	Wire Cloth.....	28
Extractor Repairs.....	17	Pouder Square Jars.....	21	Wire for Frames.....	10
Extractors, Honey.....	10	Porter Bee-escape.....	11	Wire Nails.....	26
Favorite Family Scales.....	25	Queen and Drone Trap.....	29	Wood Separators.....	12, 13
Feeders.....	27	Queen-bees.....	28	Wood Screws.....	26
Feeding for Winter.....	27	Queen-cages.....	28	Wood Thumb-screws.....	21
Foul Brood.....	34	Queen-catcher.....	28	Wood-zinc Honey-boards.....	11
Foundation, Comb.....	14	Queen-excluding Zinc.....	28	Yucca Brush.....	21
Foundation-fasteners.....	14	Queen-cell Protector.....	28	Zinc Honey-boards.....	11
Foundation-machines.....	15	Queen-register Cards.....	28	Zinc, Perforated.....	11
Foundation-cutter.....	15	Quinby Corner-clamp.....	21		

Catalogs of Other Goods.

We include in this catalog only our line of bee-keepers' supplies. We handle many other lines of goods, which are listed in separate catalogs and circulars. These we shall be pleased to mail to any one interested, on application. Catalogs and circulars now ready for mailing:

- Catalog of Tools and Household Specialties.
- Catalog of Garden Seeds and Plants.
- Catalog of Wire Netting and Fencing.
- Catalog of Honey-labels and Rubber Stamps.
- Catalog of Planet Jr. Garden Implements.
- Circulars of Bone and Grist Mills; Sewing-machines, Planing-machines; Engines, etc.



HOME OF THE HONEY-BEES.